Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

A DESCRIPTIVE CATALOGUE OF FIELD, PASTURE GRASS AND SOIL-IMPROVEMENT CROPS

Asgrow

TEXGROW

Associated Seeds, Inc.

San Antonio 6

Robstown Weslaco

Texas

Foreword

THIS Descriptive Catalogue of Field, Pasture, Grass and Soil Improvement Crops is published in response to many requests and suggestions from customers and friends who feel the need of a handbook comparable to the well-known Asgrow Descriptive Catalogue of Vegetables. In the present compilation we have endeavored to be equally accurate and equally concise, basing our descriptions and data on widely extended observations and records in the territory we serve, which includes the dry land, range land, irrigated and greater rainfall areas of Texas.

Associated Seed Growers, Inc., the parent company with which we are affiliated, has built up over the better part of a century its fame for vegetable seed stocks of high quality, including, in many cases, strains adapted to the soil and climatic conditions of particular areas, products of the eight Asgrow breeding stations located in different parts of the country.

On the distribution of such Asgrow Seeds in southern Texas our business was founded. It has grown to serve a still greater area and to include seeds of the crops herein described, which in recent years have been extensively distributed under the brand names of Asgrow and Texgrow from our warehouses in San Antonio, Robstown and Weslaco. Also at Robstown is our breeding station, under the supervision of a competent, technically qualified plant breeder where a continuous program is conducted in developing, studying and testing various strains of vegetables and field crops for adaptability, disease-resistance and profitable growing in this region.

A modern and complete processing plant forms part of our main warehouse in San Antonio. It includes the latest, improved types of cleaning, grading and allied equipment. Great care is taken to prevent mechanical mixtures, and in every way to merit the confidence of growers in Asgrow and Texgrow seeds. A seed treating room and a cold storage room, for the maintenance of germination, are also part of our facilities.

In the first edition of such a catalogue as this it is almost inevitable that there should be incompleteness, or even errors. Comments and suggestions toward enabling it to render greater service will be highly appreciated.

ASSOCIATED SEEDS, INC.

San Antonio, Texas
December 1, 1944

Associated Seeds, Inc.

Main office and warehouse:

1226 East Houston Street

San Antonio 6, Texas

Phone: Fannin 0353

L. D. 515

Breeding station and experimental grounds: Robstown

Branch warehouses

Robstown Weslaco

Distributors of

ASGROW and TEXGROW

seeds for farm, ranch, and garden

affiliated with

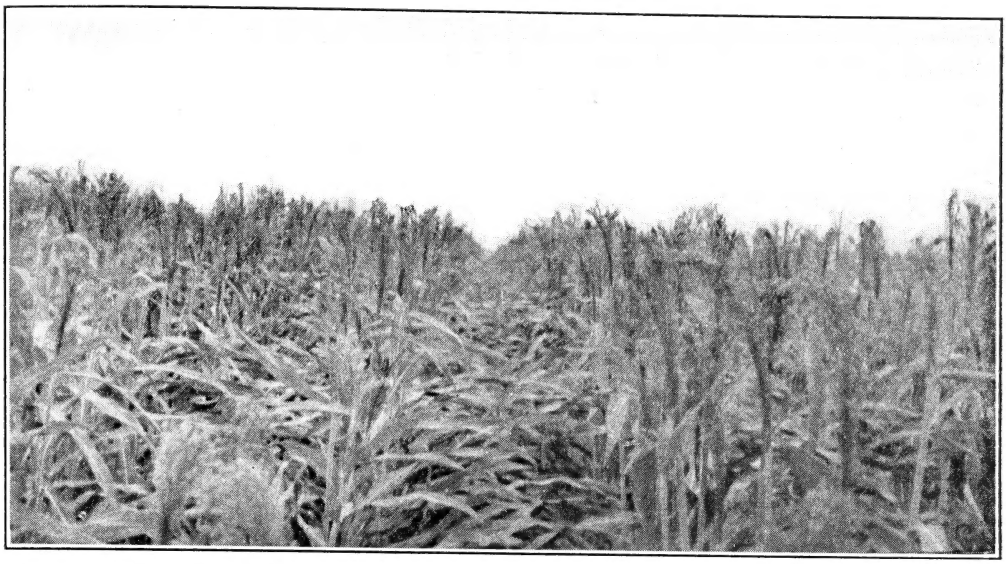
Associated Seed Growers, Inc.

Breeders and growers of seeds since 1856

New Haven 2, Conn.

Branch offices, warehouses and breeding stations

in the principal growing areas



The popular broomcorn variety: Scarborough Dwarf No. 7

BROOMCORN

Sorghum vulgare var. *technicum*

Broomcorn is a specialized sorghum, grown for the use of the brush, or straw in the seedheads.

Said to have been introduced to America by Benjamin Franklin, who found some seeds in a brush imported from Europe. Our seed is produced by experienced growers in Illinois and Oklahoma where the climatic and soil conditions are favorable to the development of superior grades of seed free from smut, weather damage, and the possibility of cross pollination with other sorghums.

Broomcorn is a hot weather plant, and the best brush is produced where the summers are hot and on loam soils well supplied with moisture which warm quickly in the spring. The dwarf varieties are more extensively grown in the South and Southwest, where the brush is pulled and the green stalk growth is utilized as grazing.

BLACK SPANISH DWARF

An early-maturing, drought-resistant variety; about 10 days earlier than Scarborough and very similar to it, but lower yielding. Adapted to irrigated soils of the Rio Grande Valley.

EVERGREEN

An old-established, tall variety; chiefly grown in the more humid sections. Produces a fine green brush, free from coarse center stems and fairly uniform; matures later than Scarborough.

SCARBOROUGH DWARF NO. 7

Introduced about 30 years ago and named for its originator, a farmer in Texas county, Oklahoma; now the most extensively grown and most popular of all the broomcorn varieties. Plants 5-6 feet tall; maturing in 100-110 days; brush long, weakly attached; branches 15-24 inches long, erect and flexible; seed enclosed in reddish brown hulls. A variety with few seeds; easy to cure and thresh. Yields a class of brush much in demand for finishing the outside of brooms.

CORN

Zea mays

Until recent times, the development of corn varieties adapted to particular purposes and conditions of growth depended on natural mutation and selection by growers. Now, however, the new science of plant breeding has been applied to the building of hybrid varieties, with most satisfactory results in uniformity, yield, disease resistance, and adaptability to the soil and climate of definite areas, so that each season the proportion of hybrid corn is steadily increasing over that of the old open-pollinated types.

A hybrid is defined as the first generation of a cross between strains of different parentage and involving one or more inbred lines or their combinations. A *single cross* hybrid is made by crossing two inbred lines, and a *double cross* from the mating of two single cross parents. A *three-way cross* comes from an inbred and a single cross. A *top cross* has for parents an inbred and an open-pollinated variety; a *double top cross* has a single cross and an open-pollinated variety for parents. Of these five types the double cross hybrids are most generally used.

The purpose of inbreeding, that is, the fertilization of plants with their own pollen, is to emphasize desired characters such as size, shape, uniformity, disease-resistance, etc., and to eliminate those that are undesirable. Continued inbreeding of a single group of plants requires a high degree of skill, patiently exercised for years and with the possibility that it may not lead to profitable results. The next step is crossing by means of controlled pollination, which must be conducted with equal care. The first generation seed of any hybrid gives the maximum benefits from hybridization. The next generation, however, is not satisfactory for seed, as the hybrids are unstable in reproduction and begin to break up into the original and diverse lines from which they were developed.

From the foregoing, three deductions follow naturally. (1) Hybrid seed must be procured anew each year, not saved. (2) It is bound to cost a little more, though it more than amply repays its cost. (3) It should be obtained only from a trustworthy and completely reliable source, since its value cannot be judged by its appearance.

The following list comprises, first, a comprehensive selection of the open-pollinated varieties which experience has shown to be best adapted to the needs of Texas and other Southwestern growers, followed by six outstanding hybrids developed through a program of breeding, selecting and testing by the Texas Agricultural Experiment Station. Others are in course of production and will be announced when available. We confidently recommend them for trial by our customers, predicting increased yields and greater uniformity, easier harvesting, and improved quality of grain for milling and feed.

The number of days indicated for each variety represents the average over different areas and different years. These figures are naturally subject to variation and are primarily intended for purposes of comparison.

Varieties marked (y) have yellow kernels; those marked (w) have white.

OPEN-POLLINATED VARIETIES

CHISHOLM REDCOB (w)

An old variety valued for its milling qualities and also for feed. Stalks tall and strong; ears have 14-16 straight rows, with ample husk coverage; kernels white, not hard, long, rough dent; cob dark-red. For early planting only. 120 days

DROUGHT RESISTER SURCROPPER (w)

Similar to White Surcropper in ear and grain character. Grains mature completely on a relatively low amount of moisture. Adapted to early and late planting to escape drought; used to some extent for early roasting ears. A good milling corn with relatively high shellout percentage. 115 days

MEXICAN JUNE (w)

Introduced from Mexico, widely adapted throughout the South and Southwest for very early and late planting. More prolific and productive under dry atmospheric conditions than other open-pollinated varieties. Responds to irrigation. Plants strong, sturdy, slender, often showing bluish-green color; ears medium, 12-14 rowed with long, coarse, tight husk; kernels white, medium-sized, with a few purple; somewhat chalky to slightly hard. Often used as a catch crop after oats and other spring crops. 120 days

OKLAHOMA WHITE WONDER (w)

Very similar to Silvermine except that the kernels are a little broader and the ears slightly more tapering. Developed at the famous 101 Ranch in Oklahoma. One of the favorite roasting ear varieties grown in the Rio Grande Valley.
120 days

SILVERMINE (w)

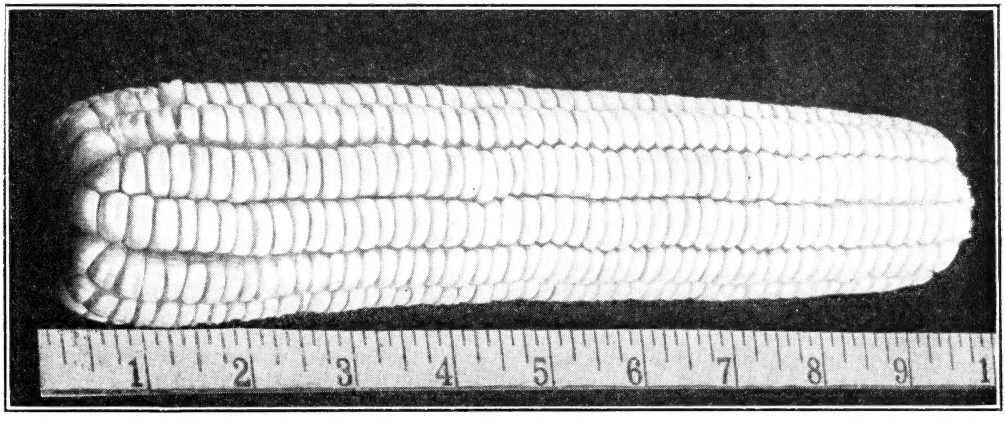
A popular variety in the Rio Grande Valley often used for roasting ears and also for silage. Well adapted to river soils in Texas, responds to irrigation. Plants relatively tall, stalks somewhat slender but strong, sturdy and quite uniform, ears long and cylindrical, with tight fitting husks; kernels white, medium in size, tight set, slightly hard (vitreous), rough to dimple dent, in 16-18 straight rows; cob white, medium size. Shellout percentage high, and a good milling variety.
120 days

STRAWBERRY

A very old, high-yielding feed corn best adapted to river and creek bottom land. So named because of variegated red and yellow grain color. Plants stout and sturdy; ears large; kernels soft, long, broad, with rough to wrinkled dent.
125 days

WHITE JUNE (w)

Our improved strain, introduced in 1942. Popular as a roasting ear variety for early and late planting, chiefly in the Rio Grande Valley. Possesses the drought-resistance of June corn and the milling qualities of the best Surcropper types. Plants medium, vigorous, strong, sturdy; ears slightly tapered, medium to large, with 12-14 straight rows, well filled at the ends, with 5-7 layers of coarse, thick, long husks, affording resistance to ear worm in roasting ear stage, and protection from weevils, bird damage and weather damage at maturity. Kernels white, thick, smooth to dimple dent, not hard, with large germ; cob white, medium sized. Holds well in roasting ear stage, and is of exceptionally good flavor.
115 days



White June: the improved Asgrow strain

WHITE SURCROPPER (w)

The most widely adapted variety for early and late planting in Texas and the Southwest. Originated and introduced in 1909 by A. M. Ferguson, pioneer Texas plant breeder and grower. More esteemed for its very excellent milling qualities than its average yields. Used also for roasting ears. Plants stout, strong, with vigorous root system, drought resistant; husk coverage ample for protection against weather, worm and weevil. Ears medium to large, 12-14 rowed; kernels large and of good depth, white, broad, flat, with large germ, hardness varies from slightly chalky to somewhat hard or vitreous, smooth to slightly rough dent; cob white, medium to large.
115 days

CORN, O-P —Continued

A seed production field of Texas Hybrid No. 8

WHITE THOMAS (w)
A variety well-adapted to south Texas, at one time known as Bissett Corn. Not a heavy yielder but has very high shellout percentage. A good variety for milling and for feed; preferred by some for roasting ears. Plants tall, ears slender and slightly tapered, with good shuck coverage; grain in 16-18 straight rows; creamy white, tight set on cob, long, thin, somewhat hard, rough to wrinkle dent; cob very small, white. Not recommended for late planting. 130 days

WHITE TUXPAN (w)
A variety well adapted to the stiff clay soils of the coastal belt and to irrigated areas of the Rio Grande Valley, where it is grown for its good marketable roasting ears of fine flavor. Yields well and provides an abundance of silage. Plants very tall, vigorous, prolific and strong, with considerable resistance to wind and storm; stalks thick, bearing 1-3 medium to large ears, slightly tapered, with 14-18 straight rows, husks long, coarse, tight fitting. Kernels white, medium sized, somewhat flinty, slightly dented; cob white, medium sized. Shellout percentage high. 140 days

YELLOW DENT, Ferguson type (y)
The standard Dent for Texas and the Southwest; originated and introduced in 1907 by A. M. Ferguson. Widely adapted; yields are consistently good, with high shellout percentage. Highly esteemed for its feeding qualities. Best adapted on bottom land and rich upland. There are many locally adapted varieties and strains of Yellow Dent, but none so outstanding and widely adapted as the Ferguson type. 125 days

YELLOW SURCROPPER (y)
A desirable drought resistant variety for ground feed developed and introduced by Prof. P. C. Mangelsdorf, released about 1934. Similar to white Drought Resister Surcropper except that grain is yellow and somewhat flinty. Rows of kernels not straight on all ears. Occasionally grown for early roasting ears where local markets prefer yellow corn. 120 days

YELLOW THOMAS (y)
Similar to White Thomas except for the shallower and broader grain. Preferred by some for feeding purposes where adapted. 130 days

YELLOW TUXPAN (y)
Very similar to White Tuxpan except for the yellow grain. Excellent for feeding and silage. 140 days

HYBRID VARIETIES

The following hybrids were developed by the Texas Agricultural Experiment Station, and have proven to be generally well adapted in the corn growing sections of the state.

TEXAS WHITE HYBRID NO. 7 (w)

An early to mid-season prolific and vigorous double cross hybrid that has proven to be an outstanding roasting ear variety of special merit. Parentage: (102A x 158-4) x (4R3 x 61M). Ears of medium size, very uniform in shape and grain character, with good husk coverage; kernels tight set, of medium size, not hard. Has proven well adapted to varying soil and seasonal conditions.
120 days

TEXAS WHITE HYBRID NO. 9 (w)

Similar to No. 7 except for better husk coverage. A later development than No. 7, seed will not be available until 1945 crop harvest. Parentage: (102A x 155A) x (4R3 x 61M).

TEXAS YELLOW HYBRID NO. 8 (y)

A very early double top cross hybrid with Yellow Surcropper as the seed parent and a single cross hybrid (127C x 132A) as the pollen parent. Probably not as uniform in ear and grain character as the other hybrids in this series, but is quite drought-resistant and has a high shellout percentage. Ears medium, slightly tapered; kernels yellow to reddish, somewhat hard; cob medium. Not the highest yielding hybrid variety but is widely adapted. 118 days

TEXAS YELLOW HYBRID NO. 10 (y)

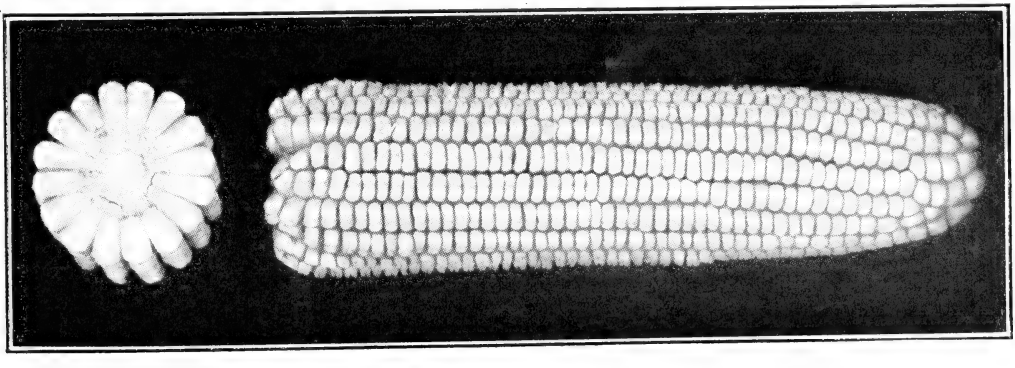
A double top cross similar to No. 8, but later maturing, with larger ears, having more dent character and uniformly large golden yellow kernels, tight set on the cob. The seed parent is Yellow Surcropper and the pollen parent (132A x 173D).
122 days

TEXAS YELLOW HYBRID NO. 12 (y)

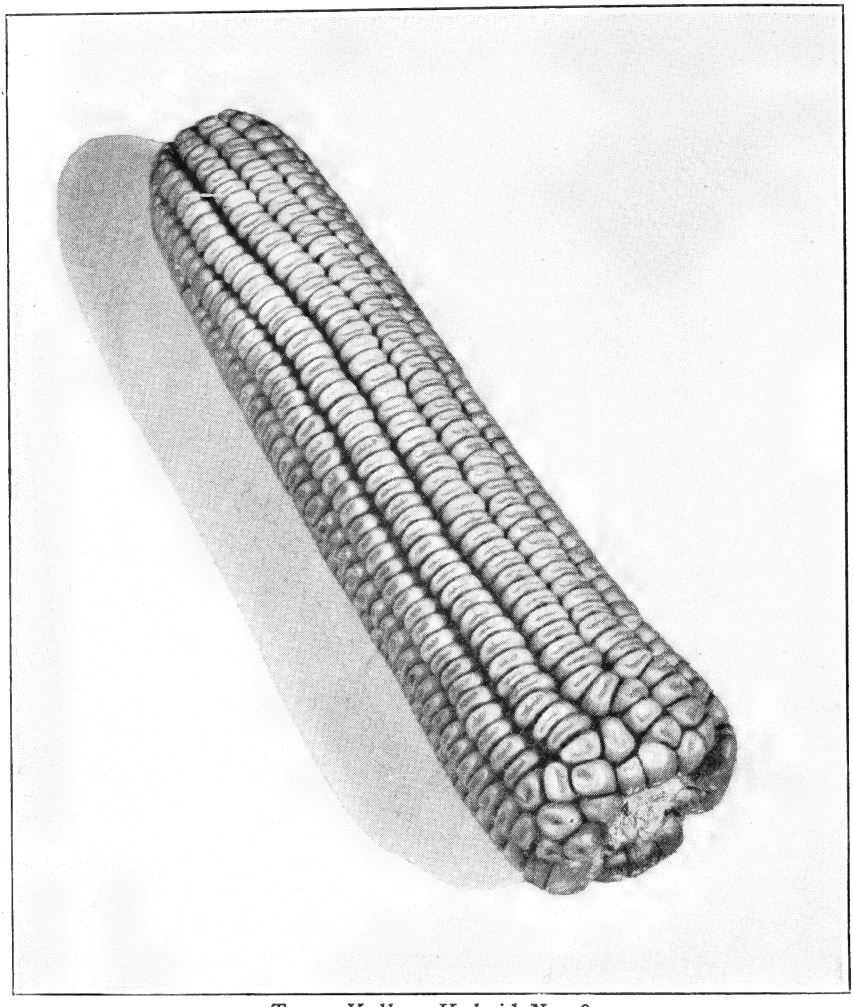
One of the most dependable and popular double cross hybrids yet developed in Texas. The seed parent is hybrid (KYS x K4) and the pollen parent (127C x 132A). It is noticeably uniform in ear and grain character and has proven better adapted to the good corn soils in the higher rainfall areas than elsewhere. Ears are medium long and cylindrical to slightly tapered; kernels of rich yellow color, hard, with dimple dent. 120 days

TEXAS YELLOW HYBRID NO. 18 (y)

The most recent double cross released by the Texas Experiment Station. The seed parent is hybrid (173D x 203) and the pollen parent (127C x 132A). This is the first all Texas yellow double cross so far developed, with all inbreds used in the hybrid originating from native yellow dent varieties. This hybrid produces rather large, slightly tapering ears, with large, soft, deep yellow kernels. The stalk is stout and strong, but the plants may root lodge under heavy winds. Results so far indicate this hybrid may be expected to give yields similar to those of No. 12. 120 days



Texas Yellow Hybrid No. 18



Texas Yellow Hybrid No. 8

POP CORN

Zea mays var. *everta*

There are three types of pop corn, distinguished by kernel shape: Pearl, with broad smooth kernels and heavy cob chaff (flower glumes) on tips; Hulless, with shoepeg kernels and very light chaff; and Rice, with pointed kernels and rather heavy chaff.

GIANT YELLOW (South American Giant: T.N.T.)
A popular late variety, plants 7½ feet tall; ears large, 7 inches, 12-16 rowed. The golden yellow kernels of pearl type are large and creamy white when popped. 100 days

GOLDEN QUEEN (Queen's Golden)
Tall (7 feet) vigorous plant with long, slim ears (7 inches) having 12-16 rows of smooth, yellow pearl-type kernels. 90 days

HULLESS
Plant 5 feet; ears chunky (3½ inches) and without row formation; kernels white pointed, narrow, pop to large snowy white. 85 days

WHITE RICE
An old standard early variety. Ears 6 inches, kernels pointed, of translucent appearance; white when popped. 90 days

FLAX

Linum usitatissimum

A very ancient fibre and oil crop in the old world but comparatively new in the Southwest, where it is grown for the seed, from which linseed oil is expressed, and the residue of meal. An annual, erect branching plant, best adapted to the cool moist periods of the fall and spring months, and following corn or other fibrous-rooted crops. Suited to loam soils which are well drained, fairly fertile, and well worked. The success of a flax crop depends very largely on the control of weeds which take moisture from the growing crop and interfere with harvesting. Flax seed is very sensitive to moisture conditions, therefore soil must be well worked to maintain a uniform distribution of surface moisture for good stands. Only seed of high germination and purity is deemed worthy of planting to compensate for the expense of land preparation necessary to control weed growth and conserve moisture.

BISON

A standard variety; not so winter-hardy as Rio nor so rust-resistant; but yields a high percentage of oil. Probably better suited for spring planting. Plants of medium height, 26″-30″, wilt-resistant but susceptible to rust.

GOLDEN

A rust-resistant and winter-hardy variety that has proven more widely adaptable through south Texas than other varieties.

PUNJAB

A high yielding variety adapted to irrigated land in Rio Grande Valley and the Wintergarden section.

RIO

A new disease resistant, winter-hardy variety adapted to the dryland farming sections of the Texas coast. Matures uniformly and has given the highest average yields of all varieties tested on the Texas Gulf Coast. Resistant to both wilt and rust. Plants 26″-36″ under irrigation, bolls large, seeds brown and slightly larger than Punjab or Bison. Midseason in maturity, averaging 3 days later than Bison.

GRASSES

NATIVE AND INTRODUCED FOR PASTURE AND TURF

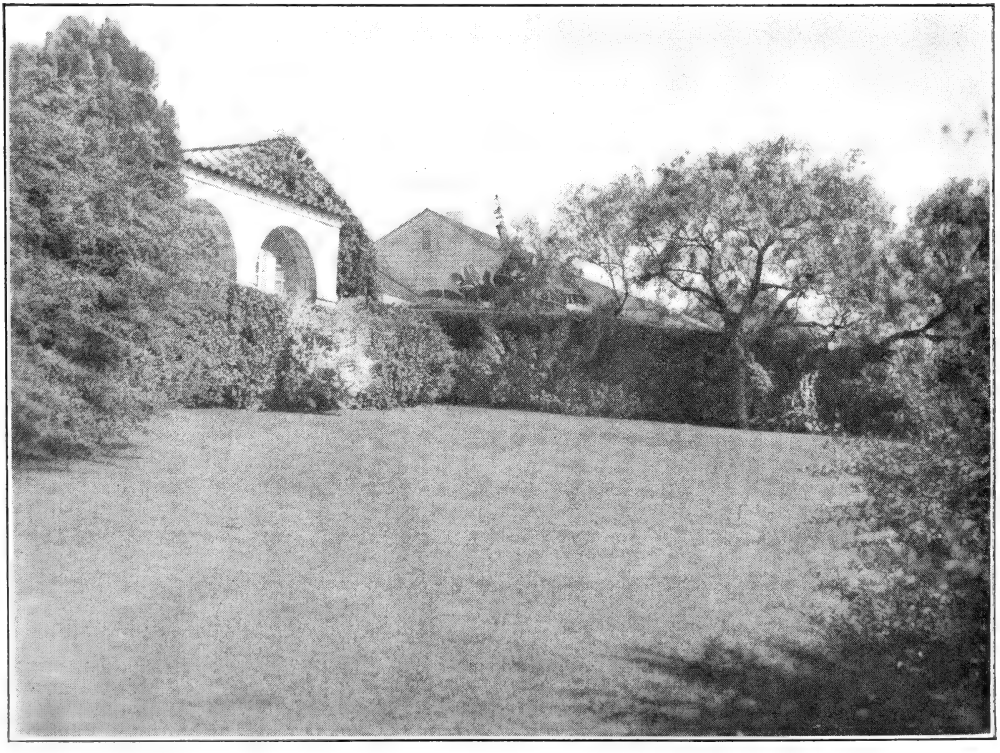
Though about 550 native species of grass are growing in Texas, only a relatively small number of them are desirable for cultivation, and grassland agriculture utilizes these with other valuable species imported from abroad, not alone for forage but also for soil conservation, to build up its plant food content, to supply surface mulch and to improve its physical structure or tilth.

Because grass plants are so plentiful, little attention has been given in the past to the study of their adaptation and suitability for particular conditions. The subject is now, however, receiving the attention it deserves, with the result that a considerable number of species have justified introduction to areas where they were previously unknown.

The following lists comprise grasses both native and introduced, all of which have been shown by experience to be adapted in various areas of the Southwest for the diverse purposes mentioned in the descriptions. To the selection and production of their seed we have given close attention in order that our customers may be assured of clean, pure and vigorous supplies which will produce satisfactory crops under proper conditions of growth.

BAHIA GRASS *Paspalum notatum*

A creeping perennial, turf-forming pasture grass, best adapted to poorly drained, low lime-content soils along the coastal region from Texas to Florida. Almost an evergreen, and withstands heavy grazing and trampling. Plants 6-12 inches high, spreading by coarse short rootstocks to form a very dense sod. Sends up a succession of new leafy shoots of light green color.



Bermuda is the leading lawn grass in the South

BERMUDA GRASS *Cynodon dactylon*

Without a doubt the most dependable turf-forming grass yet to become acclimated to southern soils and climate. Shows preference for fertile, moist, clay-loam soils; but grows on any soil when supplied with relatively abundant moisture. Bermuda grass is utilized for diverse purposes. It is the foundation grass for southern lawns and golf courses, yet no other grass is used so extensively and is so well adapted for southern pastures or erosion control. Used also for highway maintenance, airports, army bases, and to hold embankments and levees. It is also the best grass yet found for irrigated pastures of the Southwest. Seeds well in arid to dry climates of Arizona under irrigation, whence comes the bulk of the seed grown for planting purposes. The plants form dense turf 3-8 inches deep; spreading by means of seeds, underground root stocks and surface rooting stems or stolons; very leafy; somewhat drought-resistant. The seeds are very small, and most rapid germination is from hulled seed. Good in mixtures with other lawn and pasture grasses and clovers such as Dallis grass, Carpet grass, Rescue grass, Common Ryegrass, White Dutch clover, Bur-clover, Black Medic, Lespedeza, Hop clover and Persian clover.

BIG BLUESTEM *Andropogon furcatus*

A native perennial bunch grass valuable for spring, summer and early fall pasture. Like corn and sorghum, it prefers rich, fertile, well drained soil within the 30-40 inch rain belt. The deep penetrating root system adds organic matter to the subsoil and prevents erosion. Responds well to cultivation. The plants spread by short root stocks to form luxuriant, dense, leafy growth 1-2 ft. high. Stems many, tall (3-6 ft.) not woody but brittle at maturity, terminated by forked seed stems 2-3 inches long. Taller and ranker growing than Little Bluestem, with wider leaves and higher moisture content.

BLUE GRAMA *Bouteloua gracilis*

The most valuable perennial grazing grass on the western range. Furnishes grazing in the spring and fall to winter. Cattle fatten on it with very little additional feed. It controls water and wind erosion. Best adapted on the brown, fertile soils of west Texas and the higher altitudes in the Southwest and Mexico. Plants with numerous narrow leaf blades, seed stems slender, upright, 1-2 feet above the turf. On flat land under grazing forms dense solid turf; but a more bunchy habit of growth on hill land. Identified by the seed spikes, which have the appearance of small brushes attached banner-like to the uppermost part of the stems.

BUFFALO (Mesquite) GRASS *Buchloe dactyloides*

One of the most nutritious and fattening grasses for pasture and range from Texas north to Canada, readily grazed by all classes of livestock from late spring to late winter. Grows best on tight clay and clay loam soils. Turf thick and perennial; plants spreading by means of many surface runners radiating in all directions; leaves fine and abundant. Becomes dormant during drought and in winter. Grows with Bermuda in drier soils, where it is also valuable as a lawn grass. Seeds are borne in small burs on short seed stems among the leaves. While most nutritious in the cool moist to cool dry periods of spring and fall, it cures on the ground and retains some of its feed value during periods of drought and in winter.

CARPET GRASS *Axonopus compressus*

A perennial mat-forming grass well adapted to the humid regions of the high rainfall belt in coastal prairie pastures and the pine timber soils. While not considered so palatable and nutritious as some other grasses, it is a valuable foundation pasture grass in those areas. Bermuda grass, Lespedeza, and White Dutch clover are good in mixture with Carpet grass which flourishes through most of the year and is grazed by stock even when it has been browned by frost. Easily eradicated by one plowing.

Carpet grass, as its name indicates, is also used for lawns, but should not be confused with the shade-loving St. Augustine grass, *Stenotaphrum secundatum*, frequently, but inaccurately, called Carpet grass. St. Augustine grass has seedheads borne down among the leaves, whereas true Carpet grass sends up slender seed stems 10-15 inches above its leaf growth.

GRASSES—Continued

Little Bluestem *Side-oats grass*

DALLIS GRASS *Paspalum dilatatum*

An important prennial pasture grass in the South, native to South America, introduced nearly a century ago and named for A. T. Dallis, who grew it extensively in Georgia. Well adapted to the moist, fertile, delta and bottom soils or hill lands derived from limestone formations. Very popular in Texas and the Southwest because of its long growing period and its succulent, rich foliage which furnishes abundant grazing and fair quality hay which, however, is not always easy to harvest, because of the tendency of the plants to lodge. Usually grown in combination and succeeds well with Bermuda, Carpet grass, Rescue grass and White Dutch or Persian Clovers, affording rich and palatable pasturage to dairy herds and livestock generally. Vegetative growth is rank, foliage is very dark green and maintains a dense turf even under heavy grazing. Seed stems erect when not grazed. There are many native Paspalum grasses but none equal to Dallis in grazing and hay value.

COMMON (Italian) RYEGRASS *Lolium multiflorum*

Often referred to as "winter grass" or "winter green". Widely adapted throughout the South for green lawns during fall, winter and spring, also used for pasture on permanent sod, or temporary pasture with oats and bur clover, and for winter soil-erosion control. Prefers rich soils and cool moist weather. Not drought-resistant but somewhat winter hardy. Revives quickly and rapidly after close clipping and heavy grazing. Plants very leafy and spreading when spaced, but forming a soft, deep and dense dark green carpet when planted in thick stands. Where seasonal conditions are favorable, will yield an excellent quality hay, with or without mixtures of legumes.

JOHNSON GRASS *Sorghum halepense*

Though regarded as a pest in cultivated fields of Texas and the other cotton states, this is a nutritious summer grazing grass, well adapted to clay soils in river bottoms and uplands where it gives protection and grazing on fields no longer wanted for cultivated crops. Yields a fair quality of hay. Often confused with Sudan grass but develops a long fleshy perennial root stock. Becoming more popular in the northern states, where it grows as an annual.

KENTUCKY BLUEGRASS *Poa pratensis*

A winter-hardy, turf-forming grass best adapted to rich, sandy loam or limestone soils of cooler moist climates of the northern states, where it is one of the most important lawn, pasture, and meadow grasses. Plants spread by short root stocks and reproduce by seeds. The stems and leaves are fine and numerous, forming a very dense, soft, even turf for lawns or golf courses. In Texas it requires special care for such purposes if allowed to remain through the long, hot summer, but is more often used for winter and spring growth.

LITTLE BLUESTEM (Prairie Beardgrass) *Andropogon scoparius*

A native perennial bunch grass, for early spring and late fall, but not summer, grazing. Well adapted to topsoils that are fertile but somewhat low in lime. The deep and wide spreading root system binds the soil and adds organic matter. Easy to start on oak-hickory, peanut, and lespedeza soils. By June plants have formed a dense bunch growth of narrow leaves of bluish-green color, 12-20 inches high. The seed stems (2-3½ ft.) then grow, reaching maturity between August and November. Suitable for planting with Rhodes grass on sandy peanut land for permanent pasture and erosion control.

PERENNIAL (English) RYEGRASS *Lolium perenne*

A short-lived perennial sod-forming grass not so extensively grown as Common ryegrass but more in use to establish meadows and pastures quickly in mixtures with other perennial grasses on fertile soils in regions with long, cool, moist periods. Plants form dense turf somewhat coarser than Common ryegrass but very nutritious and palatable. Seldom endures more than one season under Southwestern conditions.

REDTOP *Agrostis alba*

A perennial turf-forming grass used chiefly in mixtures for lawns and golf courses. Adapted to wet or moist soils low in fertility and on acid lands for hay, its ability to thrive under such relatively unfavorable conditions constitutes the chief reason for the use of this rather unpalatable species in pasture and meadow mixtures. Plants spread by short rootstocks. Stems erect, very fine; leaves narrow and numerous. When clipped or grazed forms a fine, close turf. Popular in the higher altitudes of Mexico.

RESCUE GRASS (Southern Bromegrass) *Bromus catharticus*

Probably native to the cotton states of North America. Grows best on rich, moist adobe and limestone soils during the cool, moist periods of the fall and spring months. All classes of livestock graze the nutritious leaves and stems, and fatten on the seed as the plants reach maturity. Plants annual, 1-3 ft. tall and winter-hardy. Stems numerous, spreading to erect; leaves abundant, with long leaf blades; seed heads tall, loose and open, but when heavily grazed, are small and short. Responds to irrigation and to application of fertilizer. Excellently adapted to growing with permanent pasture grasses such as Bermuda, Dallis, and Buffalo, furnishing grazing while the latter are dormant. Rescue grass combines well with Johnson grass in meadows, bottom lands, pecan orchards, and where alfalfa is used for grazing. Also a fine grass to grow with lespedeza and bur-clover.

Rescue grass: for winter forage

GRASSES—Continued

Rhodes grass

RHODES GRASS *Chloris gayana*

First cultivated in South Africa by Cecil Rhodes and introduced by the U. S. Department of Agriculture in 1902. One of the most valuable permanent pasture, hay, and erosion-control grasses yet discovered for south Texas, the lower half of the Gulf coastal area and Florida climate and soils. Furnishes more green grazing over a longer period than any other perennial pasture grass in this area. Responds to irrigation. Endures the short periods of cold weather in south Texas but also withstands long periods of very hot weather. Plants 2-4 ft. tall with perennial spreading runners; stems numerous, very leafy, dark green, succulent, of high moisture content and very nutritious. The sod, though tough, is not difficult to plow out, and the soil is left improved for following crops in more than one season.

SAND DROPSEED (Mesquite) *Sporobolus cryptandrus*

A good native range grass for erosion control and grazing, alone or with other permanent range and pasture grasses. Grows best on tight sandy soils and is widely adapted. Plants perennial, in very small tufted bunches, growing vigorously on limited amounts of moisture, not very leafy, but sending up numerous fine stems 12-18 inches tall. Seeds profusely. Furnishes winter and summer grazing. An inexpensive grass to use, the seed being very small.

SIDE-OATS GRASS *Bouteloua curtipendula*

The most widely adapted permanent summer perennial pasture, range, and erosion-control grass found on limestone soils, with the longest grazing period of any range bunch grass. Low in moisture content but very nutritious and fattening, green or dry. Thrives best, like oats, on limestone, sandstone, and shale soils. Withstands drought well and furnishes grazing when dormant in winter. The fine fibrous root system holds the soil and adds organic matter to the subsoil. Easy to establish, responds to cultivation; readily controlled, and adaptable for maintenance work on highways and soil binding. Often grown in mixtures with other range bunch grasses. Plants erect to spreading, and their numerous fine leafy shoots form a very dense turf. May be recognized by its very short, scaly underground rootstocks and numerous long, upright seed stems, 1½-3ft. tall, with seeds borne in spiked clusters spaced at intervals along the upper part of the stems.

SUDAN GRASS

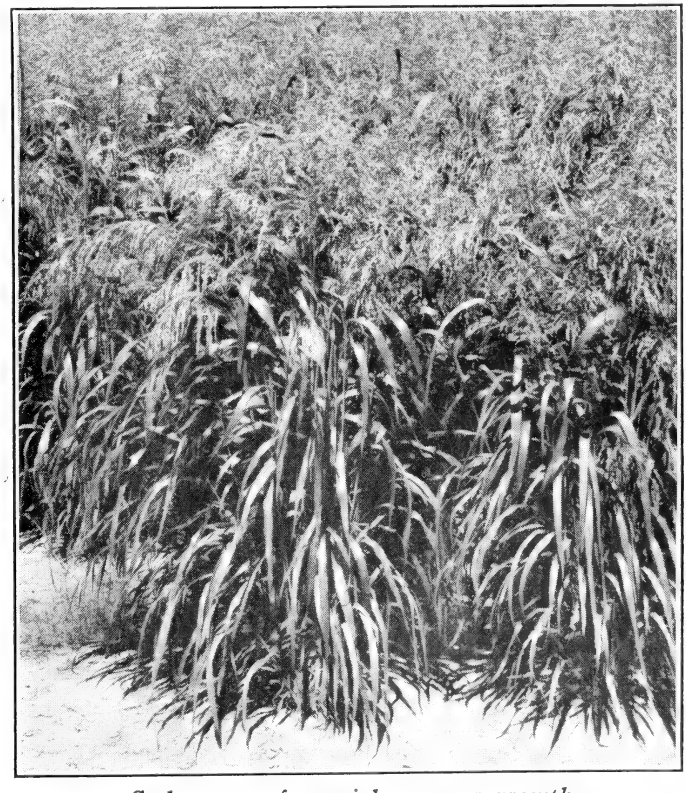
SORGHUMS FOR GRAZING

SUDAN GRASS, *Sorghum vulgare* var. *sudanense*

An annual, drought-resistant, quick growing and very nutritious sorghum for pasture and hay, introduced from Africa in 1909 by the U. S. Department of Agriculture. Sudan has now become the most valuable and widely distributed and adaptable of all the summer annual grass crops used for green grazing in the central and southern states. Grows well on almost any soil, except deep sand in high rainfall belts. May be planted several times during the long southern growing season to provide continuous green succulent growth. Readily grazed by all classes of livestock and ready to pasture in 4-6 weeks after planting when it has attained a height of 2-3 ft. Frequently used to plow under as a green manure crop. Finds a place as a soil-control crop to afford protection from wind and water erosion. Plants grow 5 to 6 ft. tall, erect, with numerous, fine, leafy, stems. Root system fine, fibrous, spreading.

SWEET SUDAN GRASS, *Sorghum vulgare*

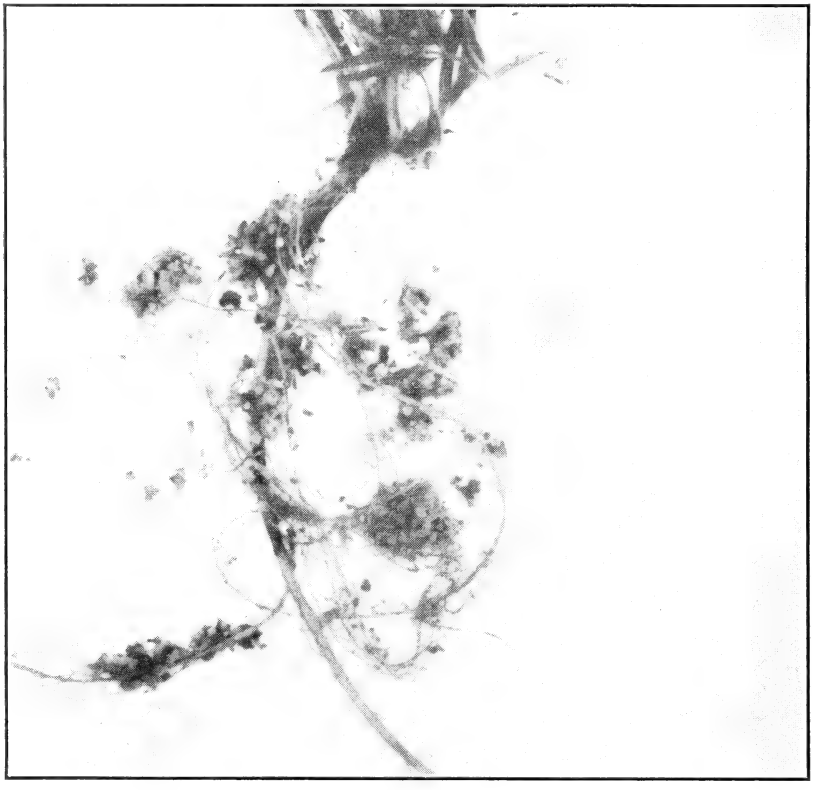
A new and distinct grass sorghum developed by the Texas Agricultural Experiment Station through crossing Sudan grass and Leoti sorgo and repeatedly backcrossing to the Sudan grass parent. Sweet and juicy stalk, non-shattering seed habit, a distinct sienna colored seed and disease resistance have been transferred from the sorgo to the new grass sorghum through plant breeding. Resembling common Sudan in plant habit, Sweet Sudan is a little later in maturity, more vigorous growing and a higher yielder of both forage and seed. The plants are sweet and juicy, more resistant to foliage diseases and chinch bugs than common Sudan, and remain green and growing later in the summer and fall. Bright reddish seed hulls readily distinguish the variety from common Sudan, Johnson grass or other sorghum mixtures. Grazing tests have indicated that livestock prefer Sweet Sudan to common Sudan, the grazing period of the pasture is extended and the coarse stems are eaten readily.



Sudan grass for quick summer growth

LEGUMES

Legumes comprise a vast group of more than 7,000 species, among which are many extremely important crop plants such as peas and beans high in protein for food; soybeans of great value for food, feed, and industrial uses; alfalfa, clovers, lespedeza, and vetches which provide high protein forage and hay. The majority of the native species and the cultivated forms are characterized by the pea-type flower, the pod fruit, and the nodule-bearing soil-improving roots. The penetrating power of the roots enables them to improve the soil texture, and the bacteria which live in the nodules fix the free nitrogen of the air into available plant food. When these bacteria are not naturally present, the correct culture for a given legume may be easily and inexpensively mixed with the seed before sowing.



The nodules on legume roots are caused by nitrogen-fixing bacteria

ALFALFA

Medicago sativa

Alfalfa is a perennial legume but not a clover, and for almost any climate there is an adapted variety. It prefers fertile, well-drained, rich, deep limestone soils; neutral to slightly alkaline, and well fitted. To establish alfalfa, a firm, moist, subsoil is very important, with the first two inches of the surface soil loose and of open structure, free from debris to permit soil and seed to be firmly pressed together with a roller or a float after sowing.

Alfalfa ranks first as a high grade hay crop, furnishing high protein feed with very excellent keeping qualities. The somewhat bushy leafy growth and soft, pithy stems make it easy to cure without waste. A valuable grazing crop for all classes of livestock, though care must be exercised in grazing cattle and sheep on it to prevent bloat.

As a soil builder, alfalfa leaves the soil porous and well supplied with organic matter to a great depth beneficial to succeeding crops for several years afterwards.

No field or forage crop calls for more care in the purchase of seed than does alfalfa, since it is not possible to distinguish between varieties and strains by the appearance of the seed, therefore only seed of known origin and variety, with high germination and purity should be used. Sound, well matured seeds are plump and of bright, olive-green color.

COMMON (Chilean)

Introduced from Chile to California about 1850. Probably more widely grown and better adapted in Texas than other varieties. Plants erect, 1-3 ft. high, with many branched fine, leafy stems. It may be cut from three to five times during the year, yielding high quality hay, and may be used for pasture. Common Rye-grass and Rescue grass are frequently sown with it to extend the grazing period and reduce the danger from bloat to cattle and sheep when the alfalfa is young and tender.

HAIRY PERUVIAN

Introduced from Peru in 1899. Not so winter-hardy as other varieties, but very drought resistant and adapted to the long season areas of the South and Mexico. While it may not produce quite such good quality hay as Common, it may be cut more often and recovers rapidly. Plants 1-3 ft. tall, very vigorous, leafy, branching profusely; stems somewhat coarse. The stems and leaves are covered with very fine short hairs which give the variety its grayish appearance.

SOUTHWEST COMMON

An improved high-yielding variety. While not so winter-hardy as northern varieties, has proven quite adaptable to the variable climatic conditions in the central to northern sections of the cotton belt. Has been grown for many years in Oklahoma and Wilbarger County, Texas.

A rich alfalfa pasture

BLACK MEDIC (Yellow Trefoil) *Medicago lupulina*

A biennial winter-hardy pasture legume, more closely related to alfalfa than the bur-clovers. Only adapted to moist, fertile, well-drained limestone soils. It takes the place of bur-clover where greater cold-resistance is required and is very suitable for sowing with Bermuda grass, Dallis grass, Kentucky bluegrass, and Ryegrass pasture to furnish grazing and maintain soil fertility. It will stand heavy grazing and trampling. Plants produce a dense, thick growth of short, creeping to sub-erect, soft, succulent, fine, leafy stems readily recognized by the small yellow flowers and the black one-seeded pods.

CALIFORNIA BUR-CLOVER *Medicago hispida*

So called because the seeds are enclosed in pods which have short spines or burs. The most valuable and most used of the winter bur-clovers for permanent pasture in Bermuda grass, Dallis and Carpet grass to furnish abundant green grazing while these grasses are dormant. It maintains the soil fertility and succeeds best on soils relatively high in lime, moist and well drained. The trailing leafy stems are readily grazed by all classes of livestock. Sometimes used as a green manure crop. In contrast to alfalfa and Black Medic, bur-clovers have a shallow, spreading root system enabling them to grow readily on sod land. For best results, plant hulled and scarified seed of known variety and origin.

CLOVER

Trifolium spp.

The primary use of the Trifoliums or true clovers is to furnish grazing and maintain fertility. There are kinds adapted to almost any climate and soil condition, but all prefer a fairly moist and fairly fertile soil.

PERSIAN (Shaftal) *Trifolium resupinatum*

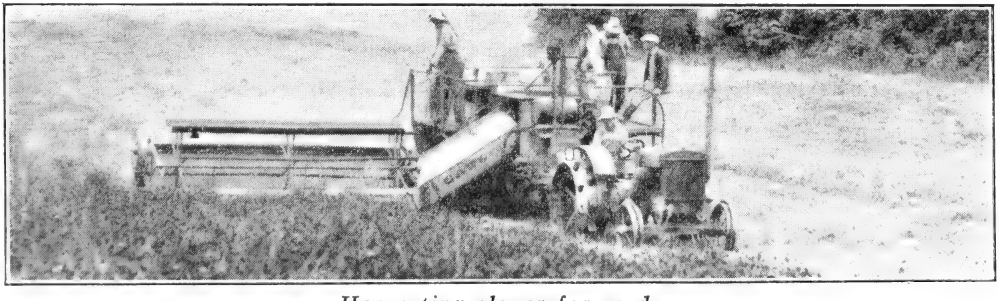
A winter annual pasture and hay clover which is becoming more popular as the demand for more and better legumes increases. Well adapted in the South on heavy moist clay soils and on irrigated land, where it yields a high tonnage of good quality hay relatively easy to cure. Has proven satisfactory as a green manure crop for soil improvement. Plants spreading when grazed; but erect (1-2 ft.) when thickly planted and not grazed. Stems leafy, fine, numerous, soft and succulent; flower heads pink, very fragrant; seeds about the size of White Dutch, but shiny and dark green to purple.

WHITE DUTCH *Trifolium repens*

The most popular clover for lawn grass mixtures. Grows best in the cool moist periods of the fall and spring, flourishing on well-drained, moist soils high in lime content. It adds forage value when sown with such grasses as Dallis, Carpet, Bermuda, and Kentucky bluegrass. Plants perennial, 3-12 inches; stems fine, numerous, leafy, creeping, soft and succulent; developing roots at the joints. Seeds very small, yellow to red, heart shaped.

YELLOW HOP (Hop) *Trifolium dubium*

An annual winter and spring clover better suited to drier upland soils than White Dutch. Furnishes excellent grazing and improves the soil. Plants spreading to erect; stems numerous, fine and leafy, inclined to be woody, but not tough at maturity; flower heads yellow; seeds very small, shiny, oblong. Often found in mixtures with White Dutch.



Harvesting clover for seed

COWPEAS

Vigna sinensis

The cowpea is native to Africa. Introduced to American agriculture as early as 1714; the South's most important annual summer legume crop for food, feed, and soil improvement. The many varieties and types make this species more widely adapted to a greater diversity of Southern soils, seasons, and cultural conditions than any other summer legume. The cowpea is well adapted to soils low in lime and in fertility, but well drained; growing best through periods of warm, moist to hot dry weather.

The better grades of planting seed are grown in regions where season and climate are suitable for the production of good quality seed free from mold and weather stains. The varieties listed here are those in most general use throughout Texas and the Southwest.

The number of days given for each variety represents an average and is intended primarily for purposes of comparison.

FOR FIELD USE

BRABHAM (Bush)

Originated as a natural cross between Iron and Whippoorwill, retaining the former's resistance to wilt and nematodes. A widely adapted variety, used for hay, grazing and soil improvement. Plants tall, semi-bushy; pods long, held high; seed similar to Whippoorwill but somewhat smaller. 90 days

CHINESE RED

Widely adapted and extensively used in Texas for soil improvement, due to quick growth and early maturity. May be combine harvested, and because of early maturity two crops are frequently produced in one season. Plants dwarf, erect, of uniform maturity; pods small, round, held high. Seed very small, hard, round, pale red to red. 70 days

IRON

An old, early established variety, highly resistant to wilt and root-knot disease. Well adapted for combine harvesting. Plants upright, semi-bushy, not so prolific in seed yield as other sorts; pods held high, seeds small, cream buff to brownish and very hard. 95 days

NEW ERA (Bluewhip)

One of the more important commercial hay and soil building sorts. Produces a high seed yield. Suitable for combine harvesting. Plants tall, erect, bushy, very prolific; pods held high; seed small, buff, uniformly speckled with blue. 80 days

WHIPPOORWILL

One of the oldest varieties and most commonly grown for high yield of hay, for grazing and soil building. Well adapted to clay soils for early and late planting. Plants tall, vining, vigorous; pods long, held high; seed buff-brown and speckled. 90 days

Cowpeas: Valuable for soil improvement as well as the crop

COWPEAS—Continued

Brown Crowder: a popular early variety

FOR TABLE USE

The following varieties are commonly called Table Peas in the South, as distinguished from Garden, English, or Stock Peas.

BLACK-EYE, Large
A standard main crop variety with tall, strong, prolific plants. Pods large, long and easily shelled. Green peas large and attractive; reach full maturity about 15 days later and have good keeping qualities as dried peas. 60 days

BROWN (Sugar) CROWDER
An early edible-podded variety, used also for green shelled peas for canning and for dried peas. Desirable as a forage crop and for soil improvement. Plant dark green, thick-stemmed and branching. Pods round, plump, blunt, medium green, filled with brownish peas crowded tightly together. Seed smooth, buff-brown with darker brown eye. 57 days

CREAM CROWDER
Quite similar to Brown Crowder and used in various ways. Plant vigorous, dark green, with tendrils at top. Pods round, blunt, medium green, containing light green peas closely crowded together. Seed smooth, medium, cream with buff eye. 57 days

CREAM LADY
A very good variety of this group for table use, grown also for soil improvement. Plant stocky, dark green, branching. Pods oval, medium green, straight, blunt, closely filled with light green, tender peas. Seed small, smooth, ivory white. Widely adapted. 55 days

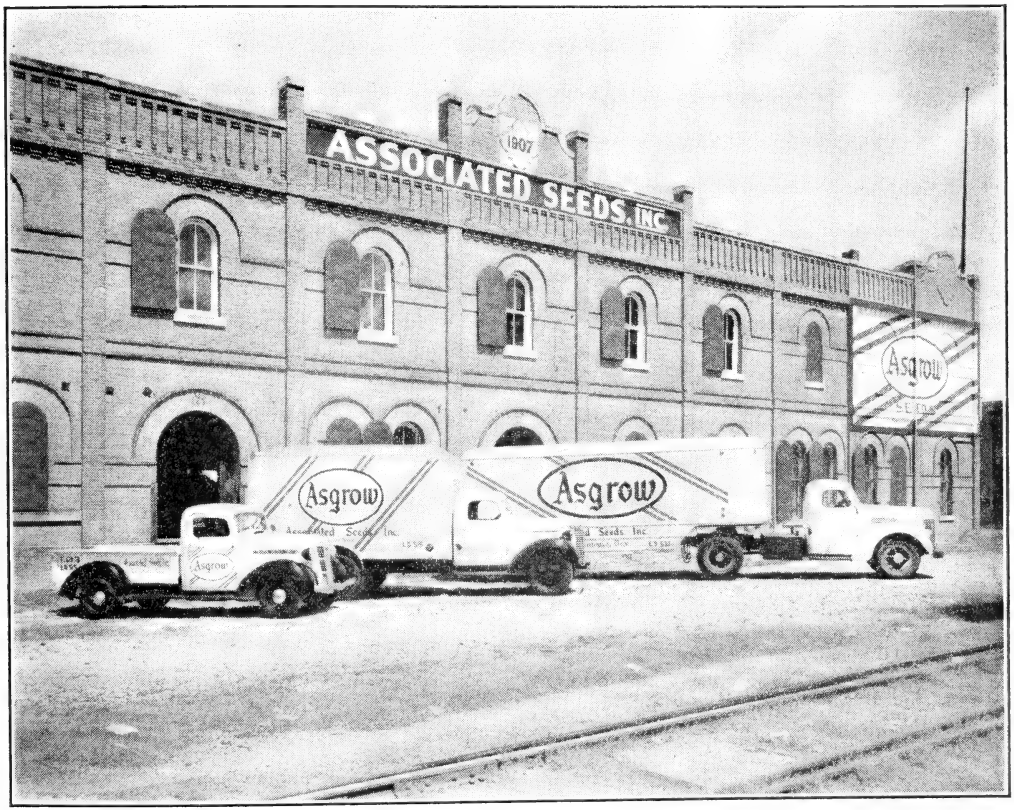
PURPLEHULL (Browneye)
A standard home garden and market variety; of good flavor for canning and green shelled peas. Pods purple, somewhat tough, seed smooth, medium, cream-white with buff to brown eye. 58 days

CROTALARIA

The crotalarias, of which there are several hundred species though only a few of economic importance, are native to subtropical and tropical regions. They require a long growing season, high temperatures and fairly good moisture supply.

Crotalaria spectabilis (Showy)

The most commonly grown crotalaria to furnish green manure; it is unpalatable to stock. One of the best adapted summer legumes for enriching moist sandy soils in the vegetable and citrus orchard sections of the South and the Rio Grande Valley. May yield as high as 30,000-40,000 pounds of green growth per acre. The stalks are hollow to slightly pithy and decay quickly when turned under. Plants annual, 5-7 ft. tall bushy, widely branched when spaced; quick growing and leafy. The only legume thus far known to be completely immune to root-knot. Responds well to irrigation. Crowds out noxious weeds and grasses, and is also a valuable erosion-control crop.



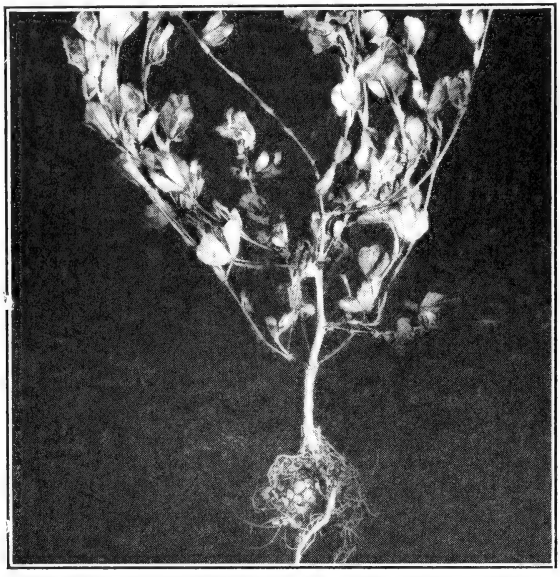
Side view of our San Antonio warehouse

FIELD BEANS

PINTO *Phaseolus vulgaris*

Deservedly a favorite in dry southwest regions both as a commercial crop and in home gardens for spring and fall planting. Principally used dry for soups or chili; to a smaller extent for green snap beans if picked young. Both dry beans and snaps have a distinct and popular flavor. A soil improvement crop.

Plant small to medium, of spreading bushy type, early, prolific and highly resistant to drought. Pods flat and medium light green when young, later becoming oval, broad and colored with brown streaks on cream background, 4″-5″ long, stringy and tough. Seeds about 5 per pod, large, broad oval, buff with tan to brown splotches, 85-90 per oz.



Lespedeza: for pasture, hay and soil improvement

LESPEDEZA

Lespedeza spp.

The Lespedezas are Oriental legumes, but not clovers. Most valuable hot weather pasture, hay and soil-building crops for humid regions from the Gulf of Mexico to Indiana, on soils low in lime but fertile, moist but well drained and preferably with high phosphorous content. The leafy stems are inclined to be woody, but are readily grazed by all classes of livestock, and yield a highly nutritious, readily digestible hay. The much branched lateral roots are numerous, extending widely through the sub-surface and increasing the value of lespedeza for erosion-control. They are prolific seed producers and highly prized as ground feed for all classes of livestock.

COMMON LESPEDEZA *Lespedeza striata*
The species in most general use in the South. Seldom grows more than 6-9 inches tall, but because of low moisture content gives up to two tons per acre of very fine quality air-dried hay. Provides grazing and maintains soil fertility in pasture with Bermuda, Dallis, Carpet, Red Top and Bluegrass, when too hot for other pasture crops.

KOBE (Chinese) *Lespedeza striata* var. *kobe*
An improved variety of Common. Grows somewhat taller and is used extensively in grain fields for summer grazing and hay. Withstands drought well. Later than Korean and yields more hay but less seed.

KOREAN *Lespedeza stipulacea*
A very early, large, rather coarse kind. Better suited to lime soils than other lespedezas. Retains its leaves at maturity and is an excellent grazing and hay plant for oat fields, and to control soil erosion. Often in mixtures with other related species. Especially adaptable for the upper South.

SERICEA *Lespedeza cuneata*
A perennial species becoming increasingly popular for its value as a soil erosion crop, hay crop, and as a food and cover crop for wild game. Yields good quality hay on fertile sandy soils too low in lime for alfalfa, and seed high in protein. Plants send up numerous leafy stems 2-4 ft. tall; flower profusely in summer, set seed in the fall. Somewhat slow to start growth from seedling stage, but once established remains indefinitely. A plant with very low moisture content, yet palatable and easy to cure for hay. Probably has a wider range of adaptability when row planted to permit occasional cultivation.

SESBANIA

Sesbania macrocarpa

A native, erect, tall, quick-growing annual summer legume which shows a preference for hard-pan soils. Used extensively in irrigated sections for its value as a soil-improvement crop. Protects citrus orchards during hot summer weather; used also to furnish food for game birds during the fall. Produces an enormous tonnage of green succulent growth ready to plow under in 4-6 weeks, when it decays rapidly, adding nitrogen and organic matter to the soil, and helping to bring it into good mechanical condition. Its rapid growth can crowd out noxious weeds and grasses.

An Asgrow crop of soybeans grown for seed

SOYBEANS

Soja max

Soybeans are native to the Orient and recently have become of great agricultural and industrial importance in America, many varieties having been developed for diverse purposes. Under the growing conditions of south Texas, however, they are only recommended for green manure, to which the following varieties are well adapted. They will improve the structure of clay soils and build up others low in fertility. Seed should be inoculated before planting. It is hoped that the work now being carried on by several agencies will result in the development of other varieties with wider uses in this territory.

LAREDO

Introduced from China in 1914 by U. S. Department of Agriculture. Recognized as the best adapted variety for drier climates of Texas. Quite cold hardy, and well adapted for early and late planting. Highly resistant to wilt and root-knot. Plants erect, branching freely, with fine stems; seed very small, flat, black.

RED TANNER

A more recently developed type for southern conditions which has quickly gained acceptance. Very similar to Laredo, except for the color of the seed which is red instead of black.

PLANTING TABLE FOR SAN ANTONIO AREA

NAME OF CROP	TIME TO SOW	Pounds of Seed Required Per Acre		Depth to Plant	Number of Pounds Per Bushel	Approx. Number of Seeds Per Pound
		Rows	Broadcast	Inches		
Alfalfa	Sept. to Dec.	.....	20– 30	1–1½	60	200,000
Barley, Winter	Sept. to Jan.	.....	70–100	2–3	48	13,000
Beans, Pinto	March to May—Aug. Sept.	40–60	.....	3	60	1,500
Black Medic (Yellow Trefoil)	Sept. Oct.—Jan. to March	.....	8– 12	½–1	60	300,000
Bluegrass, Kentucky	Feb. to April—Sept. Oct.	.....	15– 20	½–¾	14	2,800,000
Broomcorn	March to June	3– 6	.....	1–2	48	30,000
Bur-Clover, hulled	Sept. to Nov.—Jan. to March	.....	10– 20	¾–1	60	145,000
Clover, Annual Yellow Sweet	Sept. Oct.—Jan. Feb.	.....	8– 15	¾–1	60	335,000
Biennial, White Sweet	Sept. Oct.—Feb. Mar.	5–10	15– 25	¾–1	60	260,000
Emerald Sweet	Sept.—Jan.	3– 5	12– 20	¾–1	60	300,000
Hubam	Sept.—Jan.	3– 5	12– 20	¾–1	60	300,000
Persian	Sept. Nov.—Jan. to March	.....	5– 10	¾	60	660,000
White Dutch	Sept. Oct.—Jan. to March	.....	5– 10	¾	60	680,000
Corn, Field	Feb. to May	6–10	.....	2–4	56	1,200 to 1,500
Popcorn	Feb. to May	5– 8	.....	1–2	56	2,500
Cowpeas, Chinese Red	March to June—July to Oct.	20–30	40– 70	2–3	60	6,000
Large seeded varieties	March to June—July—Oct.	30–40	60–100	2–3	60	3,000
Crotolaria spectabilis	March to July	8–10	20– 30	2	60	29,000
Egyptian Wheat (Shallu)	March to July	8–12	.....	1–2	50	20,000
Flax	Nov.—Feb.	.....	35– 50	1–1½	56	82,000
Grasses:						
Bahia	Sept. Oct.—Feb. to April	.....	12– 20	¾–1	....	125,000
Bermuda, hulled	Sept. Oct.—March May	.....	5– 10	½–¾	35	1,950,000
Bermuda, unhulled	Sept. Oct.—March May	.....	10– 15	½–¾	35	1,300,000
Bluestem, Big	Feb. to April	10–12	15– 20	¾–1	....	150,000
Bluestem, Little	Feb. to April	8–12	12– 20	¾–1	....	260,000
Blue Grama	Sept.—Feb. to May	.....	8– 12	½–¾	....	900,000
Buffalo (Mesquite) in bur	Feb. to May—Sept.	5–10	15– 20	¾–1	....	40,000
Carpet	Sept. Oct.—Feb. to April	.....	8– 12	½–¾	18	1,200,000
Dallis	Sept. Oct.—Feb. to April	6– 8	10– 15	½–1	15	275,000
Johnson	April to June	.....	20– 30	1	....	120,000
Redtop	Sept. Oct.—March to May	.....	8– 10	½–¾	30	5,700,000
Rhodes	Sept.—Feb. to May	3– 6	10– 20	½	10	1,700,000
Rescue (Southern Brome)	Sept. Oct.—Jan. Feb.	.....	15– 30	1	18	56,000
Ryegrass	Sept. to March	.....	20– 30	¾–1	24	225,000
Sand Dropseed (Mesquite)	Feb. to April	.....	3– 5	½	....	5,000,000
Side-oats	Feb. to May—July	8–12	15– 20	½–1	....	190,000

Lespedeza, Common	Feb. to April	.....	20– 25	¾–1	25	340,000
Kobe (Chinese)	Feb. to April	.....	20– 25	¾–1	25	200,000
Korean	Feb. to April	.....	20– 25	¾–1	25	240,000
Sericea, hulled	Feb. to April	6– 8	15– 20	¾–1	60	370,000
Millet, Big German	March to July	15–20	40– 50	¾–1	50	210,000
Pearl (Cattail)	March to July	8–12	.....	¾–1	50	180,000
Oats, Winter	Sept. to Dec.—Jan. Feb.	.....	60– 90	2	32	13,000
Spring	Jan. to March	.....	60– 90	2	32	13,000
Peas, Table						
Blackeye	March to Sept.	30–60	.....	2–3	60	1,800
Crowder	March to Sept.	30–60	.....	2–3	60	2,000 to 2,500
Cream Lady	March to Sept.	20–50	.....	2–3	60	3,500
Peas, Winter or Field						
Austrian	Aug. to Nov.—Jan. to March	20–40	60–100	2–3	60	4,800
Canada Field	Sept. to Nov.—Jan. to March	30–40	80–120	2–4	60	3,000
Winter (Caley)	Sept. to Nov.	.....	30– 40	2	....	16,000
Rape, Dwarf Essex	Aug. to May	4– 6	8– 10	1	50	105,000
Sesbania	April to July	10–20	30– 40	1	....	44,000
Sorghum, Amber	Feb. to July	8–20	40– 80	1–1½	50	25,000
Atlas Sorgo	Feb. to July	10–20	60–100	1–1½	50	.....
Combine types	March to May—Aug.	6–12	.....	1	50	.....
Darso	Feb. to June—Aug.	6–20	.....	1	50	.....
Feterita	April to July	6– 8	.....	1	50	9,000
Hegari	Feb. to Sept.	8–20	.....	1	50	.....
Kafir	Feb. to June	6–10	.....	1	50	17,000
Leoti	March to Aug.	6–12	40– 80	1	50	.....
Orange Sorgo	March to June	6–20	60– 90	1	50	23,000
Schrock (Sagrain)	Feb. to July	6–12	.....	1	50	.....
Sumac (Red Top)	Feb. to Sept.	6–20	60–100	1	50	35,000
Syrup Cane	Feb. to June	4–12	.....	1	50	.....
Yellow Milos	Feb. to May—July to Sept.	4– 8	.....	1	50	10,000
Soybeans	Feb. to May—July to Sept.	20–40	60– 90	2–3	60	2,000 to 8,000
Sudan Grass	Feb. to Sept.	10–20	20– 40	1	40	54,000
Sunflower	Feb. to June	6–12	.....	2–3	24	6,000
Velvet Beans	March to June	20–30	.....	2–4	60	800
Vetch, Common (Spring)	Sept. Oct.—Feb. Mar.	20–30	50– 60	2–3	60	9,000
Hairy (Winter)	Sept. to Nov.—Jan.	20–30	30– 40	2	60	16,000
Hungarian	Sept. Oct.—Jan. Feb.	20–30	30– 40	2	60	11,000
Wheat	Nov. Dec.	.....	80–120	2	60	13,000

The information given above is applicable to normal seasonal conditions for the vicinity of San Antonio, Texas, and for seed of good germination and purity.

Time to plant and planting rates vary with season, locality and uses of crop. Row plantings may be 32-42 inches apart or double drilled. Broadcast plantings may be made with grain drill, hand sown, end gate seeder, or wheelbarrow seeder. Planting depth varies with kind of seed or seed unit, moisture and soil. The number of seeds per pound will depend to some extent on the variety, moisture content and other factors.

Hubam Sweet Clover: a deservedly popular variety

SWEET CLOVER

Melilotus spp.

No other legume crops are so well adapted to improve clay soils. Once regarded as common field weeds, the sweet clovers are now among the most valuable temporary pasture legumes and soil improvement crops to prepare land for establishing permanent pasture grasses. They provide excellent grazing in cool moist periods of the year and flowering plants for bees during the warm spring and summer. The deeply penetrating root systems absorb subsoil minerals and, afterwards decaying, leave them available for other plants; they will also tend to loosen packed soils into a mellow, even, uniform structure, easily worked.

ANNUAL YELLOW BLOSSOM *Melilotus indica*

An annual yellow flowering kind winter hardy only in the coastal soils. Chiefly used and best adapted as a cover crop to maintain good soil structure and fertility in orchards, used where an early quick growth is desired. Inexpensive to sow and the best sweet clover to plant with oats on bottom land. Matures early at the same time as oats therefore does not interfere with harvesting the oat crop. Plants spreading when young, erect 1½-2½ ft. when mature; stems fine, leafy, woody, but not tough.

BIENNIAL WHITE SWEET *Melilotus alba*

Extensively grown in north and northwest Texas grain and cattle grazing sections for its value as temporary pasture and a soil improvement crop. Will grow wherever alfalfa is adapted. Best used for spring planting in oats and on limestone soils too shallow for the best growth of alfalfa and Red Clover. Grows two years from one seeding and often attains a height of 10 ft. in the early spring of the second season. Plants develop fleshy deep penetrating roots. Highly prized as a bee plant.

EMERALD SWEET *Melilotus alba annua*

An entirely new annual white-blossomed sweet clover developed by the Texas Agricultural Experiment Station and introduced in 1944. It branches profusely from the crown, is many and fine stemmed, leafy, green seeded and is shorter than Hubam. Adapted wherever Hubam is grown, it is especially valuable as a pasture or hay crop, recovering more rapidly from close grazing than Hubam, which it nearly equals in soil-improving possibilities.

HUBAM *Melilotus alba annua*

A most valuable annual legume crop for grazing and soil improvement. Discovered in Alabama as a sport in a field of Biennial Sweet clover, which it closely resembles; introduced as a commercial crop by Professor Hughes, of Ames, Iowa, about 1915, Hubam is subject to frost injury, but may be sown in south Texas from September through November or after January first; from San Antonio to Waco in January to March; from Dallas northward, in March and April. It makes rapid and luxuriant growth valuable for grazing, matures before cotton root rot becomes active and shows promise in the control of this pest. An important winter cover crop and soil builder in the citrus orchards of the Rio Grande Valley, can be plowed under with advantage when either young or mature; used also for silage and is very desirable for bees.

Emerald Sweet Clover

VELVET BEANS

Stizolobium spp.

Velvet beans produce a greater growth than any other summer annual legume planted for forage and soil improvement in the high rainfall belt of southeastern Texas. Immune to wilt and rarely attacked by root-knot, the species is more adaptable than cowpeas on rich soils in warm moist climates. Responds to irrigation and smothers out undesirable weeds, brush and grasses. Cattle and hogs graze and fatten on the matured seed in winter. The development and introduction of bunch types has increased the range of adaptability of this valuable legume.

EARLY SPECKLED

The most extensively grown sort, with long trailing, coarse, viny stems often 20 feet in length and dense growth of large leaves. The grape-like clusters of showy purple blossoms are attractive.

VETCHES

Vicia spp.

Vetches are adapted and widely used to maintain soil fertility and furnish feed for domesticated animals, also food and cover for wild game. They are frequently planted to provide green manure in pecan orchards, citrus orchards, and cotton fields on soils somewhat low in lime. The tender and succulent vine-like growth is easy to cut into soil with a disk harrow, where it decays readily.

Hairy Vetch

COMMON (Spring) VETCH *Vicia sativa*

A very early maturing, non-hardy vetch. Probably better adapted than other vetches or legumes to grow on moist, fertile loam soils as companion crop with spring grain crops for soil building, grazing, and hay. Grows rapidly during the cool moist periods of early fall and spring. Plants semi-viny, having slightly larger leaves and stems than Hairy Vetch. Has about same adaptation to climate as Bur-clover, but requires a much higher fertility level than Hairy Vetch. Seed large, pillow-shaped, speckled.

HAIRY (Winter) VETCH *Vicia villosa*

A winter-hardy variety well adapted on soils of somewhat low fertility and less exacting as to soil moisture requirements for successful growth. Used extensively for hay and grazing interplanted with rye, which protects the young vetch from cold dry winds and supports the growing vine. Also an important soil builder in orchards and on crop lands. Plants hairy, viny, trailing; stems terminated by bracted tendrils; flowers many and of a bluish color. Seed globular, medium to large, black.

HUNGARIAN VETCH *Vicia pannonica*

A rather winter-hardy sort used in the South and Southwest to furnish green growth for soil building, grazing, and hay on moist but fertile heavy clay soils where other vetches fail to grow well. Reported to be resistant to aphid damage. Plants are less viny than Hairy Vetch, but will produce very rank growth without the support of interplanted small grain crops. Stems and leaves covered with very long, fine, hairs which give the plants a grayish appearance. Seed large, speckled, angled.

WINTER PEAS

AUSTRIAN WINTER *Pisum arvensis*

A very widely used and well adapted winter legume soil-improvement crop for the cotton soils of Texas and other southern states. Shows a preference for well drained fairly fertile loam soils. Produces a rank growth and high tonnage of green manure which decays quickly when plowed under. Makes its best growth in the cool, moist periods of the fall and spring. Often planted with oats for grazing and soil building.

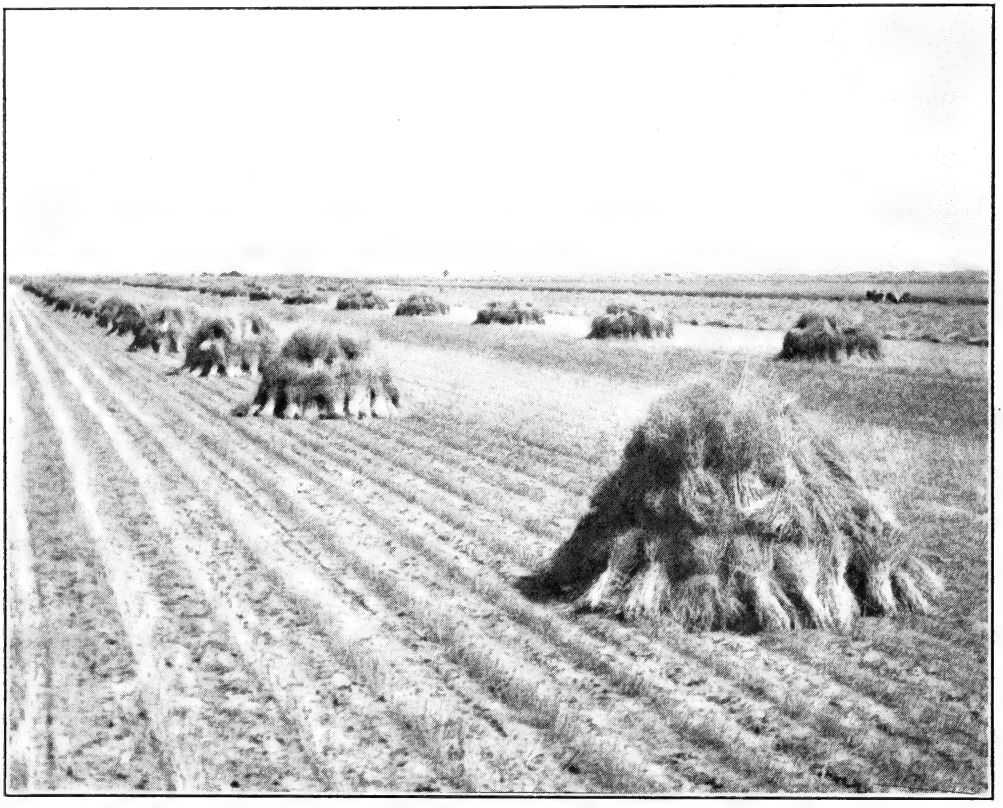
CANADA FIELD *Pisum sativum*

A northern commercial field crop resistant to Fusarium wilt. Suited to mixed soils in Texas and the Southwest for fall and early spring planting as a soil improvement crop and for green, high protein grazing. In some sections used as a home garden variety for table peas. Probably should be used more often for soil building as it will grow in the cool dry periods better than most other legumes and may be planted with oats.

WINTER (Caley) *Lathyrus hirsutus*

A native annual, winter-hardy legume related to the cultivated flowering Sweet Pea, recently brought into cultivation as a soil building and green grazing legume crop. Well adapted to the bottom lands of east Texas and other southern states, interplanted with oats, barley or rye.

Austrian Winter Pea



A seed crop of Hubam clover (page 27) at harvest

MILLETS

Millets have been grown since ancient times for food, feed and hay. Of the several kinds and varieties of millet—Big German, Pearl, Proso, Hungarian, and Siberian—the first named is most widely grown because of its high yields of hay and seed, and its wide range of climatic adaptation. Millets are warm weather crops, not cold hardy or drought resistant; and having a very extensive but shallow, fine, fibrous root system. They require a loose, loamy, moist soil, highly fertile, free of trash and well worked. The best quality hay results when cut in the bloom stage.

COMMON *Setaria italica*

A very quick growing variety that produces in about 60 days a first class quality of millet hay valued on account of numerous slender stems and abundant leaves. Adapted to drier soils than the other species. The yellow to straw colored, shiny seeds are a main constituent of prepared bird foods. Should not be confused with Hungarian yellow to purple seed, or Siberian, which is always orange in color.

BIG GERMAN *Setaria italica*

Introduced to American agriculture about 1870 and long regarded as the most valuable millet for producing consistent high yields of fine quality hay, in about 60 days, or seed, highly prized as feed for poultry about two weeks later. Its range of adaptation may be increased by row planting, and cultivation controls weed growth, conserves moisture, and reduces the soil condition referred to as "sod bound". Plants 3-5 ft. tall, stems coarse and very leafy. Seedheads large, long, heavy seeded; seed small, yellow; seedhulls intact.

PEARL (Cattail) *Pennisetum glaucum*

An annual summer, green grazing crop vigorous in growth and immune to leaf diseases. Well adapted to moist sandy soils in regions of high humidity along coast of Texas and other southern States. Gives best grazing before the seedheads develop. Plants tall and erect 4-6 ft. with numerous leafy stems, somewhat coarse but succulent and very nutritious, brittle at maturity. Seedheads long and spikelike; seed cone-shaped, pearl gray. Furnishes abundant grazing in 4-6 weeks. May be planted several times during the warm season.

PROSO (Hog) *Panicum miliaceum*

A short season crop for dry climates; grown for the seed, which is ground to feed hogs and poultry. Often referred to as "Broomcorn millet" due to similarity of the seedheads. The seeds are white or straw colored, smooth and shiny.

A familiar sight on the roads of South Texas

RAPE

Brassica napus

A cool weather, quick-growing green grazing crop. Furnishes abundant pasturage for hogs, sheep, and poultry in 4-6 weeks after sowing. Used also to plant with spring oats for grazing and green manure. Thrives best on well worked, moist and fertile loam soils. May be planted at intervals of every few weeks in the season to furnish new succulent grazing, or to harvest and feed green. Stock will fatten on it. The young, tender growth provides an agreeable vegetable dish for table use.

Though only the first season's growth is of value for grazing, the plant is a biennial, seed being produced in the second year.

SMALL GRAINS FOR GRAZING, HAY OR GRAIN

OATS

Avena spp.

Of all the small grain crops used in our territory to furnish green grazing, adapted varieties of oats are most generally grown. Oats have a higher moisture requirement than any other small grain crop and make their best growth on fertile, moist, well drained and well worked soils. There is much confusion in kinds and varieties sold on the market under very many trade names. Consequently only seed of known variety and origin should be accepted.

FERGUSON 922

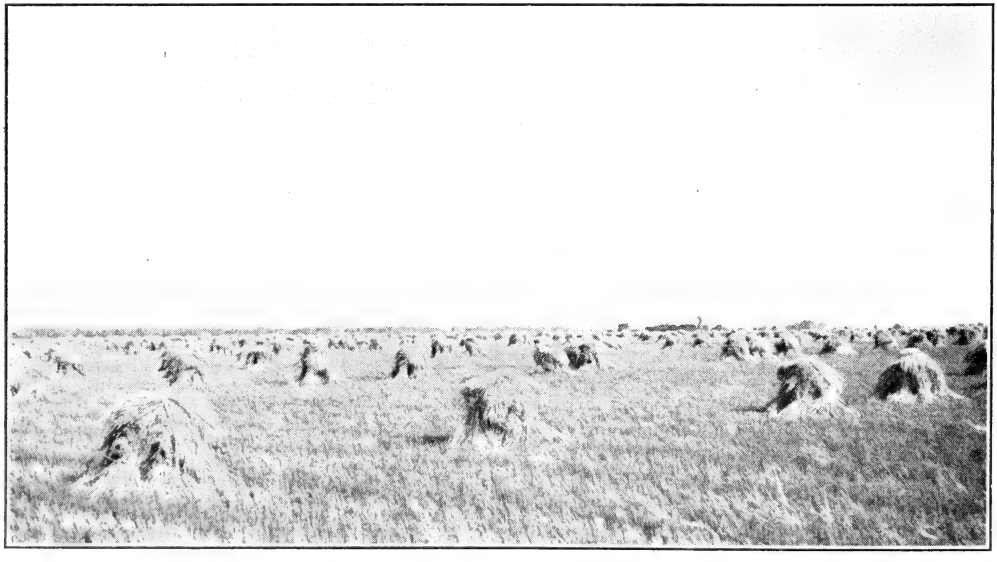
Developed by A. M. Ferguson of Sherman, Texas. A red oat variety adapted to the heavy soils of the middle cotton belt of Texas; winter hardy and shatter proof. Furnishes abundant green grazing over a long period of time. The plants form heavy spreading turf; stems coarse, strong, erect, quite leafy. Seedheads large, compact to spreading. Seed large, plump, reddish, bearded.

FULGRAIN

A combine type of milling oat, developed and introduced by Coker Seed Co. Not so winter hardy as Red oats but matures earlier and furnishes good grazing. Plants tiller freely, stand erect, are smut and crown rust resistant. Seedheads large; seed plump, thin-hulled, yellowish; beards few to none.

FULTEX

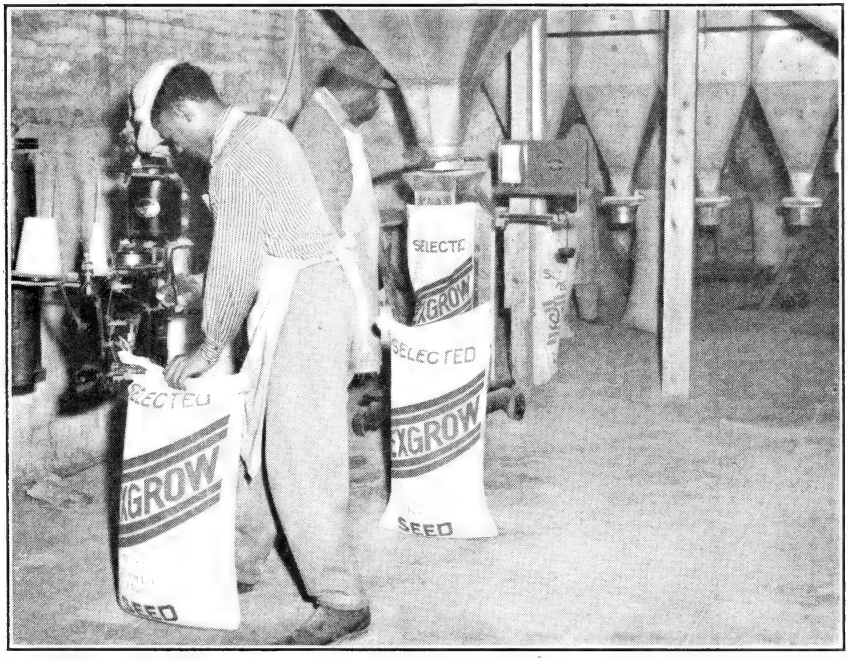
A cross between Fulghum and Victoria, developed by the Texas Agricultural Experiment Station. Highly resistant to crown rust and smut, and has a short, strong straw which makes it desirable for direct combining. Recommended especially for grain production on rich blackland soils, where other varieties are subject to lodging.



A seed crop of oats at harvest

NEW NORTEX

Developed by the Texas Agricultural Experiment Station about 1930, through selection from Texas Red Oats. Very popular in the South's oat belt for grazing and seed crops. Winter hardy, crown rust resistant, shatter proof; with consistently high yields and good milling qualities.



Bagging Texgrow seed at our San Antonio plant

RANGER

A crown rust and smut resistant variety developed for the coastal region. Of the same parentage as Rustler; a few days later in maturity and grows slightly taller. Primarily a heavy-stooling vegetative type highly recommended for grazing, but also capable of making a relatively good yield of grain in the Texas Coastal area.

RUSTLER

A cross between Nortex and Victoria, developed by the Texas Agricultural Experiment Station and the U. S. Department of Agriculture and distributed to Texas farmers in 1941. Crown rust and smut resistant, one of the best varieties for grazing, and as a grain crop for the Gulf Coast where an early grain feed crop is needed. Plants erect, free stooling, of early and uniform maturity.

TEXAS RED

Long the most popular oat for South Texas winter pasture but now being replaced by better varieties of more recent development.

VICTORGRAIN

Introduced by Coker Seed Co. as a crown rust and smut resistant variety of high grain quality. Plants of medium height, with stiff straw, earlier than Red Rust Proof. Though primarily a grain oat, may also be used for early grazing.

WINTER TURF

An old grazing variety now obsolete in Texas, but its name still remains in use among some growers as a synonym for other varieties which are grown for grazing.

EMMER (SPELTZ)

Triticum dicoccum

A winter grazing and grain crop of the wheat group well adapted to cold, wet, sandy and clay soils, also used in south Texas vegetable fields as a wind break to protect young vegetable crops, particularly vine crops. Plants form dense clumps, growing tall and erect, with stiff straw. About as winter hardy as oats. Seed remains in chaff when threshed, then is fed as ground feed to livestock. Emmer is very resistant to stem rust and smut; it should not be confused with Spelt, *Triticum spelta*, a kindred species which is susceptible to rust and not adapted to the Southwest. The common name "speltz," which is applied to both species, is confusing and should be discarded.

WINTER BARLEY

Hordeum vulgare

For succulent and nutritious grazing. Withstands alkali soils and the drier climatic conditions better than other small grains, but thrives best on fertile, moist, porous lime soils with good drainage. Often sown with oats, rye, and wheat for a well-balanced mixed pasture. Plants not so tall as wheat and oats but earlier maturing; stems coarse; leaves broad, bluish-green. Especially desirable for early fall pasture.

WINTER VARIETIES

TEXAN

A smooth bearded variety developed by the Texas Agricultural Experiment Station which is recommended for Central Texas.

WINTEX

A variety developed by the Texas Agricultural Experiment Station which is especially well adapted to North Central Texas.

SPRING

TUNIS

A spring type variety developed by the Texas Agricultural Experiment Station and recommended for fall seeding in the southern blacklands of the state. It is highly resistant to leaf rust and well adapted to harvesting by direct combining. The seed of Tunis barley should always be treated with a seed protectant for the control of seedling blight and leaf blotch.

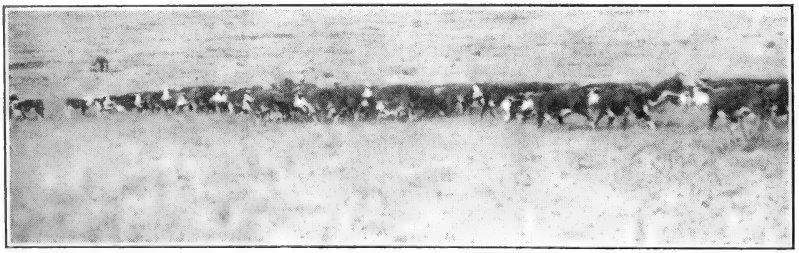
WHEAT

Triticum vulgare

One of the important grain crops in areas further north, but in south Texas used chiefly to furnish grazing in the coolest part of the year. Sown in combination with oats and barley for this purpose. Better adapted to hard land than other small grain crops and is somewhat more resistant to cold.

AUSTIN

A bearded brown-chaffed, soft red winter wheat developed by the Texas Experiment Station, adapted to the black lands and coastal area of the state. Resistant to leaf rust, stem rust and loose smut. Non-shattering and stands well for combine harvesting.



Typical heads of Martin Combine

SORGHUMS

Sorghum vulgare

The sorghums are members of the grass family, native to Africa and Asia; now among the most important crops grown in the United States for the grains, stalks, and plant juices which are used for food, feed and industrial purposes. There are many diverse varieties and types of sorghums widely adapted to soils, seasons and climates, and the grain sorghums may be described as the grain crop of dry lands. Plant breeders and growers have been unceasing in their efforts to develop more and better varieties to meet the demand of modern methods of farming.

Most of the grain sorghums listed below are improved varieties developed by the Texas Agricultural Experiment Station and all have been bred for resistance to pythium root rot.

Crops of the sorghum seeds for planting are largely grown in semi-arid regions where conditions are favorable to the production of consistently good yields of high quality seed free from diseases, insect damage, or weather spoilage.

Sorghum seedlings are somewhat slow to start growth. Only good grades of seed should be planted, in well-prepared soil and cultivated to control weeds and conserve moisture.

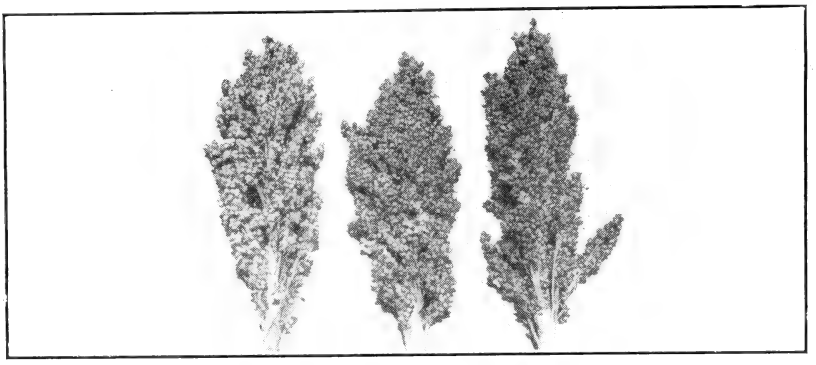
In the following lists of the various sorghum groups, the figures given for maturity and plant height represent averages compiled from observations in different years and at various places. They will naturally be subject to variation and are intended primarily for purposes of comparison.

SORGHUMS FOR GRAIN

DWARF COMBINE SORGHUM HYBRIDS

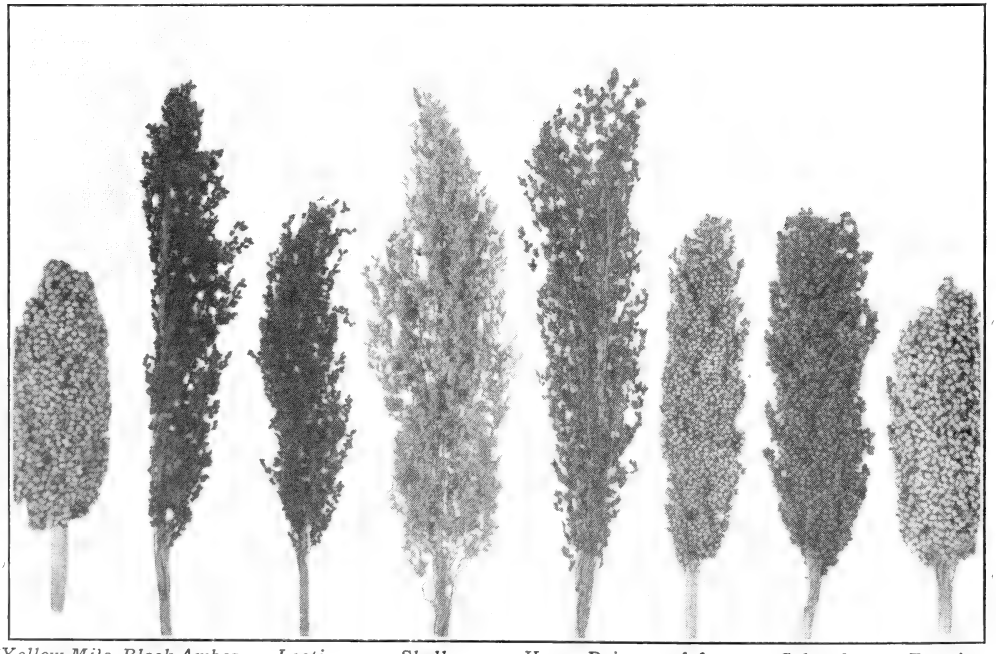
	Days to Maturity	Height in Feet
CAPROCK	110	3½–4½

A combine variety of the same parentage as Plainsman but leafier and shows a tendency to sucker more freely; seedheads large, spreading at maturity; seed large, bright-red, somewhat soft. A promising variety for longer season areas and fertile soils.



Caprock *Plainsman* *Martin*

	Days to Maturity	Height in Feet
MARTIN COMBINE — A disease resistant, non-shattering, uniform, early maturing selection from Wheatland, developed by W. P. Martin at Lubbock, Texas, in 1936, now a most popular and widely grown type of combine sorghum. Withstands wind damage and cures well for field combine harvesting under humid conditions. Affords a consistently high yield of grain with high feed value. Plants stand erect, not leafy, with long seed stems; seedheads erect, long, somewhat open, spreading at maturity; seed reddish, shatter-proof, slightly hard but brittle.	95	3½–4
PLAINSMAN — A new Kafir-Milo hybrid developed and introduced by the Texas Agricultural Experiment Station. A high yielding variety, probably better adapted to rather dry climatic conditions. Plants stand erect, few tillers; seed stems somewhat short; seedheads erect, long, large, slightly compact; seed rather soft, large, of reddish color; shatterproof.	105	3½–4



Yellow Milo *Black Amber* *Leoti* *Shallu* *Honey Drip* *Atlas* *Schrock* *Feterita*

YELLOW MILOS

(MILO MAIZE)

	Days to Maturity	Height in Feet
TEXAS DOUBLE DWARF	100	2½–3

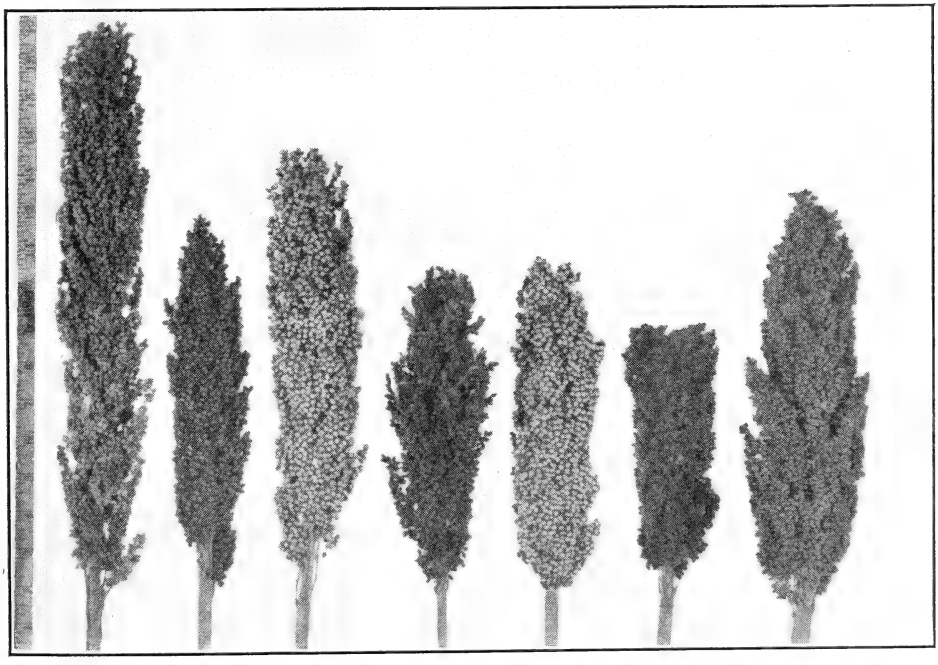
Similar to Single Dwarf, adapted for very early planting to furnish feed before corn is ready and for sections where oats are not grown as grain crops. Produces relatively high yields of large soft yellow grain, stands for combine harvest in dry climates and responds to irrigation. Often planted after oats and peas for a late crop. This popular variety is resistant to pythium root-rot.

TEXAS DWARF	105	4

A widely adapted high yielding grain sorghum very similar to the original Standard Yellow milo from which it seems to have developed about 40 years ago. Seed stems not entirely curved, tillers freely, stands well for combining in dry climates. Responds well to irrigation and under favorable conditions is often used for bundle feed. Heads compact, club shaped. Seed large, yellow, soft. Resistant to pythium root-rot.

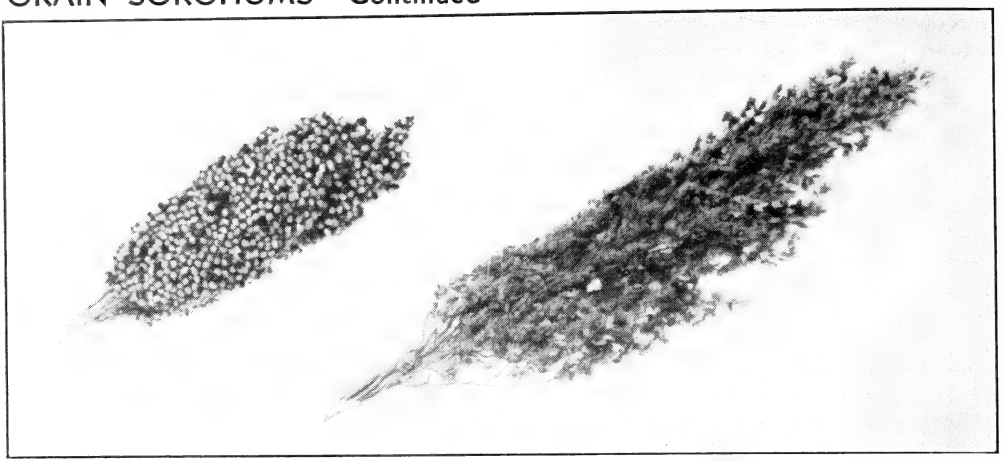
SOONER No. 8 (60-Day Milo)	90	3–3

Similar to Dwarf Yellow milo but is an earlier maturing variety, resistant to pythium root-rot; stalk slender, heads not so compact, quite drought resistant; a dependable producer, suitable for a very quick growing feed crop and good for late planting. Seed yellow, large, soft.



Red Kafir *Martin* *Blackhull Kafir* *Orange* *Hegari* *Sumac* *Darso*

GRAIN SORGHUMS—Continued



Spur Feterita *Egyptian Wheat*

	Days to Maturity	Height in Feet
EGYPTIAN WHEAT (Shallu)	130	6–8

Introduced from India about 1890 by the Louisiana Agricultural Experiment Station, highly prized as a feed for poultry and sown quite extensively for game birds. Plants leafy, tiller freely and though of limited forage value are resistant to leaf diseases and well adapted to regions of high humidity. Seedheads large and plume-like; seed creamy white, brittle but not hard, with very high protein content. Shatters freely at maturity, an advantage when grown as shade for poultry and game birds, which scratch and feed on the fallen seeds.

SPUR FETERITA	100	5–7

An improved variety developed from Feterita, which was introduced about 40 years ago from Egypt where it is used as human food. A dry climate, high yielding grain variety, immune to smut and resistant to insect damage. Produces a high average yield of grain on a comparatively small supply of moisture; occasionally used as a late crop after oats. Stalks stout, seedheads erect, less compact than those of the milos, seed very large, soft, chalky, bluish-white, very sensitive to low soil temperature; high in protein and may be fed without grinding.

Hegari: the most popular grain and forage sorghum

SORGHUMS FOR GRAIN AND FORAGE

	Days to Maturity	Height in Feet
BONITA	115	3–5

Bonita, a new product of the Texas Experiment Station, produces a white, soft grain. It is not well suited to the more humid areas because of its very tight heads and extensive suckering, which results in uneven maturity but is better suited to the drier areas where tight heads are of no disadvantage. May be of value as a bundle feed or for forage purposes.

DARSO 28	115	3–5

The original Darso, probably a chance cross between some variety of sweet sorghum and a grain sorghum, was introduced by the Oklahoma Agricultural Experiment Station from seed grown in Logan County, Okla., about 30 years ago. Popular in the Rio Grande Valley for its high yield of both grain and forage; valued as a cured bundle feed. Widely adapted though not extensively grown, resistant to shattering and bird damage; may be planted very early or very late, withstands wind damage and is fairly uniform in maturity. Stems stout, stocky, very leafy, juicy, slightly sweet. Seedheads erect, long, fairly compact. Seed medium to large; seedhulls reddish-brown. When cut and cured in the bundle makes the finest quality of feed, either ground or fed as hay, with very excellent keeping qualities. Darso 28, an improved strain developd by the Texas Experiment Station, is resistant to pythium root-rot.

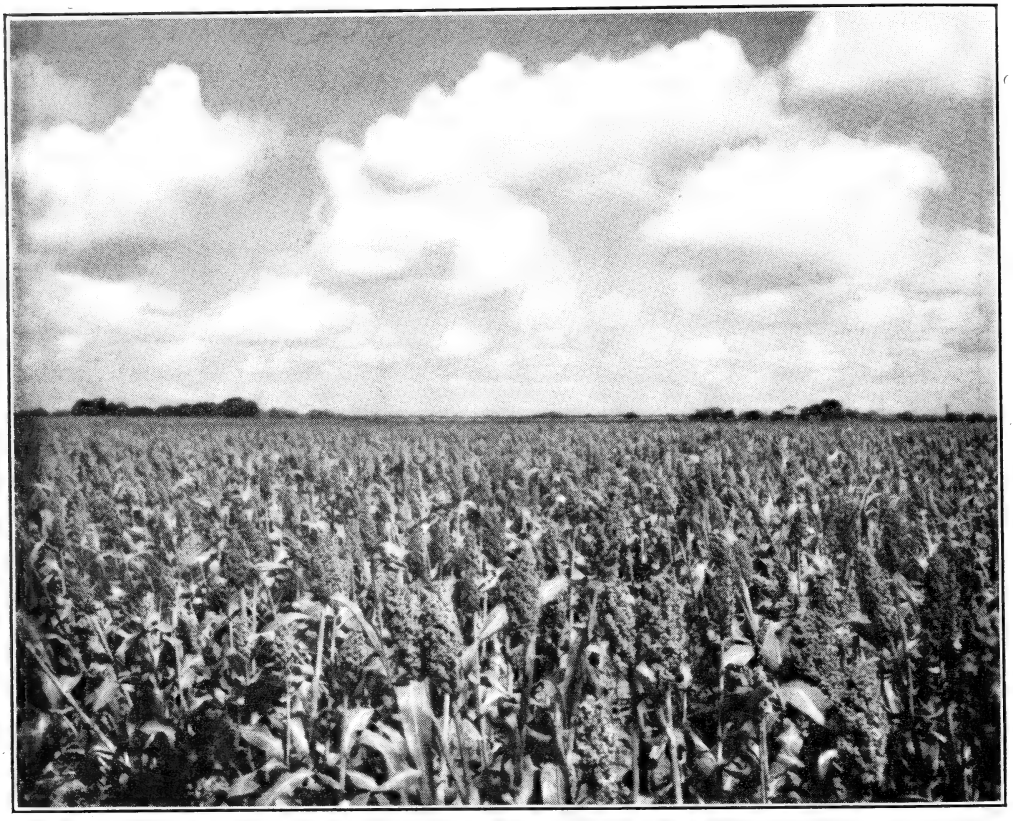
EARLY HEGARI	100	4

A new early maturing variety of Hegari developed and distributed by the Texas Experiment Station in 1939. Identical with Hegari except that it is 10 to 15 days earlier, has fewer leaves and will head and make grain under practically all conditions. It is drought resistant, but tillers and responds to irrigation, and to good soil and moisture. More generally adapted for late planting than other grain and forage sorghums, this short season crop produces an excellent quality of feed. Probably deserves more attention than it has yet received and is especially recommended for late spring and fall planting.

HEGARI	115	3–5

Introduced from the Sudan area of Africa by the U. S. Department of Agriculture in 1908, now the most popular grain and forage sorghum because of its many uses, wide adaptability, profuse tillering (stooling) habit, and its long planting season. Quite sensitive to soil and moisture, therefore best adapted on well worked loam soils. Produces high yields of forage and grain used as bundle feed, green or dry ensilage, and as a grain crop. The seed finds a ready sale on the market. Plants leafy, stems somewhat slender and subject to lodging, juicy and slightly sweet, brittle when mature. Seedheads erect, compact; seed small to mid-size, bluish-white, somewhat soft; shatters easily.

SORGHUMS FOR GRAIN AND FORAGE – Continued



Schrock Kafir (Sagrain): for high yields of grain and forage

	Days to Maturity	Height in Feet
SCHROCK KAFIR (Sagrain)	120	4–5½

A chance field cross, similar to Darso, discovered at Enid, Oklahoma, in 1912. Produces consistently high yields of grain and forage. Adapted to very heavy clay soils in regions of high humidity. May be planted early or late; resistant to lodging and to bird damage. Grown as bundle feed, often as ensilage, and will stand for combine harvest. Stems stout, juicy, slightly sweet, very leafy, leaves very broad. Seedheads not so large as Darso; seed brownish, waxy, non-shattering.

TEXAS BLACKHULL KAFIR	105	5–6

One of the white seed varieties, which command higher prices on the grain market. An early, uniform-maturing, drought and insect resisting selection from original standard Blackhull Kafir, developed by the Texas Agricultural Experiment Station and distributed in 1924. Very popular for its wide adaptability and high yields of grain and forage. Used for bundle and dry ground feed. Stems leafy, somewhat stout, resistant to lodging, slightly juicy but not sweet; seedheads erect, long, compact; seed of medium size, white, not hard but somewhat brittle; of very high feed value.

SUDAN GRASS (See page 15)

SWEET SORGHUMS

FOR HAY AND ENSILAGE

	Days to Maturity	Height in Feet
ATLAS SORGO	125	6–8

The result of a cross between Blackhull Kafir and Sourless sorgo made by I. N. Farr, a farmer of Stockton, Kansas, about 1923 and developed by the Kansas Agricultural Experiment Station. Well adapted to dry land and irrigation for very early or late planting and yields a good hay when planted very thick. The white seeds are smaller than Kafir and have a ready sale on the grain market. Stems stout, resistant to lodging, juicy, sweet, tiller freely, very leafy. Seedheads not so long as Kafir, less compact but non-shattering; seed white, small, with high feed value.

BLACK AMBER (Chinese)	90	5–7

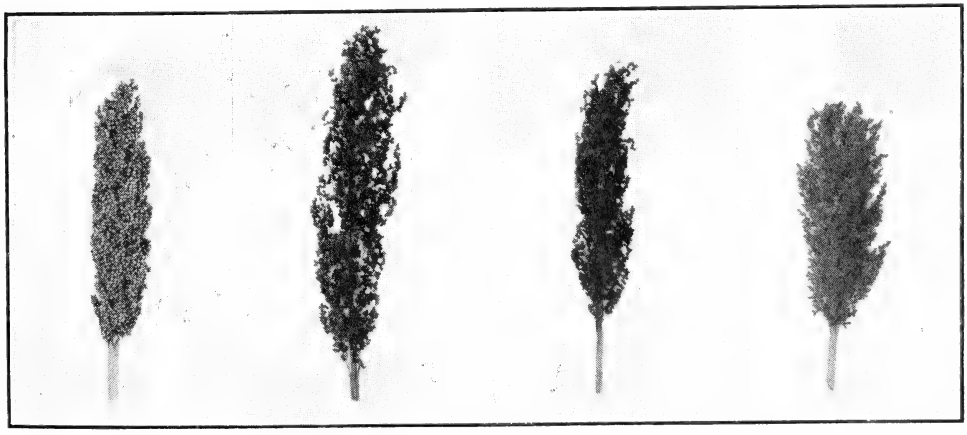
The only sweet sorghum yet introduced from China, first grown in the United States about 1853. Sown on the lighter soils in all the sorghum sections, this variety is more typical of several local strains which are seldom uniform in seedhead characteristics. A popular variety, chiefly because of very early maturity, and being resistant to leaf diseases. Not high yielding but well adapted to grow in combination with soybeans, cowpeas, and sudan for hay or silage. Not very leafy but has high sugar content. Some prefer it for the light colored syrup of distinct flavor.

LEOTI SORGO	105	5–6

Of undetermined origin, but discovered in 1920 growing on several farms in southwestern Kansas. Plants very sweet and juicy, producing high quality hay, resistant to leaf spot though susceptible to smut, and somewhat drought-resistant. Seedheads somewhat open, seed of medium size, enclosed in reddish-brown hulls, not of high feeding value.

ORANGE SORGO	115	5–6

Exact origin unknown, but typical of many strains grown locally, some of which were thought to have been introduced from Africa in 1857. Similar to a standard variety known as African Millet. Produces high yields of sweet, juicy hay and ensilage. As widely distributed as Sumac sorghums, but not so extensively planted, grows best on lighter soils and is somewhat more drought resistant. Sometimes used for syrup.



Atlas *Black Amber* *Leoti* *Orange*

SORGHUMS—Continued

SUMAC

	Days to Maturity	Height in Feet
SUMAC, MEDIUM DWARF BLACKHULL (Cane)	125	5–7

A very leafy, disease-resistant strain adapted to south Texas, developed and introduced by B. V. Hasselfield of Tivoli, Texas, in 1931-32. Produces high tonnage for hay or silage either broadcast or row planted; preferred in south Texas where all feed is row planted and harvested with the row binder. Seedheads short, compact, very uniform, seed medium in size, dark red.

SUMAC, REDHULL (Medium Dwarf Cane)	125	5–7

A strain developed by head to row selection in 1929 at Tivoli, Texas, and grown quite extensively in south Texas. Yields a very high grade bright hay; of high sugar content, uniformly maturing plants with slender stems, tiller quite freely, seedheads small; seed small and reddish; hulls reddish. Adapted to southern Texas where hay sorghums are row planted.

SUMAC (Red Top Cane)	125	6–8

A standard giant-growing variety long known for its high yields of extra quality hay and frequently turned under while green to enrich the soil. The most widely used of all the sorghums as a broadcast hay crop in heavy corn and cotton lands. Thick sowings are made early in the year to produce a heavy crop of very fine stems 3-4 ft. tall for the better curing of fine hay with excellent keeping qualities. Often planted for filling the silo, as green growth, or allowed to cure in bundles.

A field of Martin Combine Milo (page 36)

SWEET SORGHUMS (SORGO)

FOR SYRUP

Seed of the syrup sorghums is produced chiefly along the northern limits of the cotton belt, where the season is likely to be too short for good yields of syrup but is suitable for the production of seed crops. In growing sorghum for syrup, particular attention must be given to the selection and preparation of the soil, to treating the seed against smut, and to the cultivation of the crop.

	Days to Maturity	Height in Feet
GOOSENECK	130	10–12

One of the best syrup varieties, introduced from Natal, Africa, by Mr. Leonard Wray in 1857. Adapted on rich, fertile soils. Relatively free from lodging and resistant to leaf blight. Sometimes used for silage. Plants coarse and stout, stems very juicy and sweet; matures more uniformly than other varieties and yields a clear bright product. Seedheads large, with erect or slightly recurved stem; seedhulls black to brownish; seed brownish and of medium size.

HONEY DRIP	135	11–12

The most popular of the syrup sorghums, probably also introduced by Mr. Wray. Yields a high grade syrup but in South Texas is grown mostly for its very heavy yield of highly palatable ensilage, greatly relished by livestock. Plants stout and very tall, therefore somewhat subject to lodging, quite free stooling; leafy, juicy and sweet. Seedheads large, open and spreading; seed bright reddish-brown and shiny. Seed is sparsely produced and owing to the height of the stalks is difficult to handle. The continued popularity of Honey Drip shows, however, that its excellent qualities more than compensate for the slight extra cost necessarily involved in good seed of this desirable variety.

SUGAR DRIP	120	8–10

A true syrup sorghum often confused with other locally grown strains. Not extensively grown, but widely adapted. Quite popular on account of its earliness, leafiness, and usefulness for ensilage and hay. Plants stout to slender, very juicy and sweet. Seedheads relatively small and erect; seed branches somewhat stiff. Seedhulls reddish, round, much exposed, resistant to shattering. Not so high yielding as the other varieties, but gives a well flavored product.

SUNFLOWER

Helianthus annuus

MAMMOTH RUSSIAN

A warm weather crop grown for its seed, high in protein and oil content. Highly valued for poultry and bird food. Huge flower heads, often 10-12 inches in diameter; seed large, striped white and black. Mature heads often thrown to poultry for feeding. Well adapted on loam soils of the corn and sorghum type.

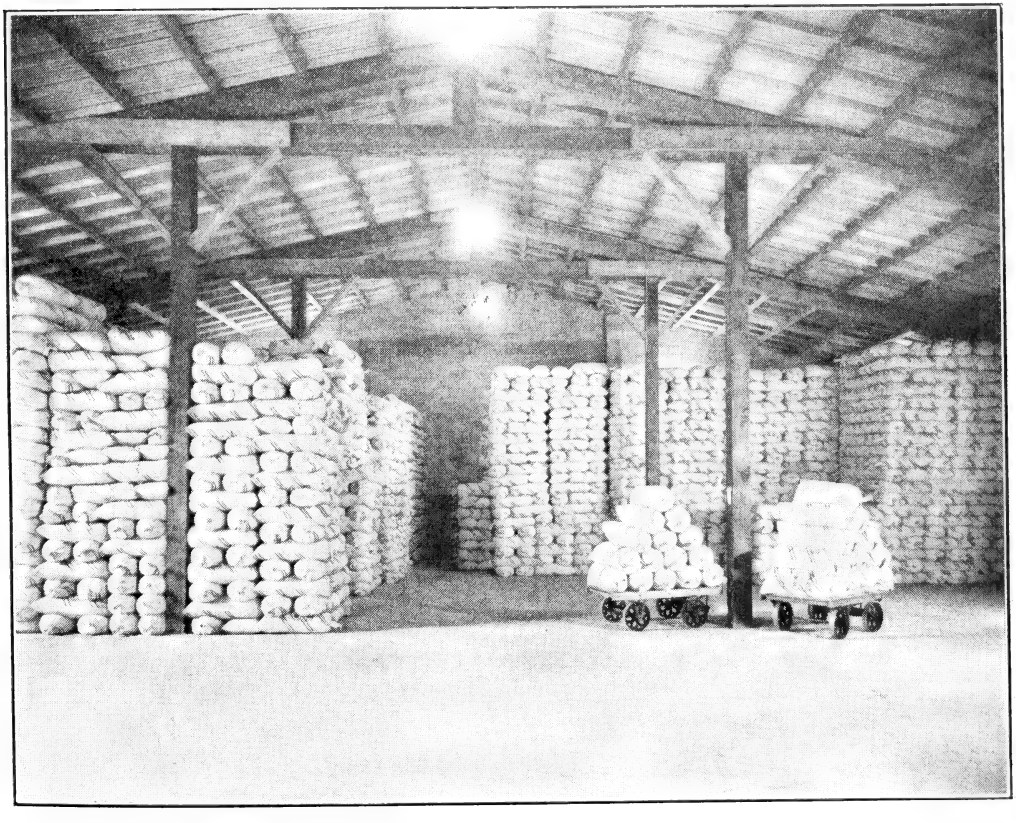
Our plant-breeding station at Robstown, Texas

Better strains for southern farmers
The Asgrow program of development

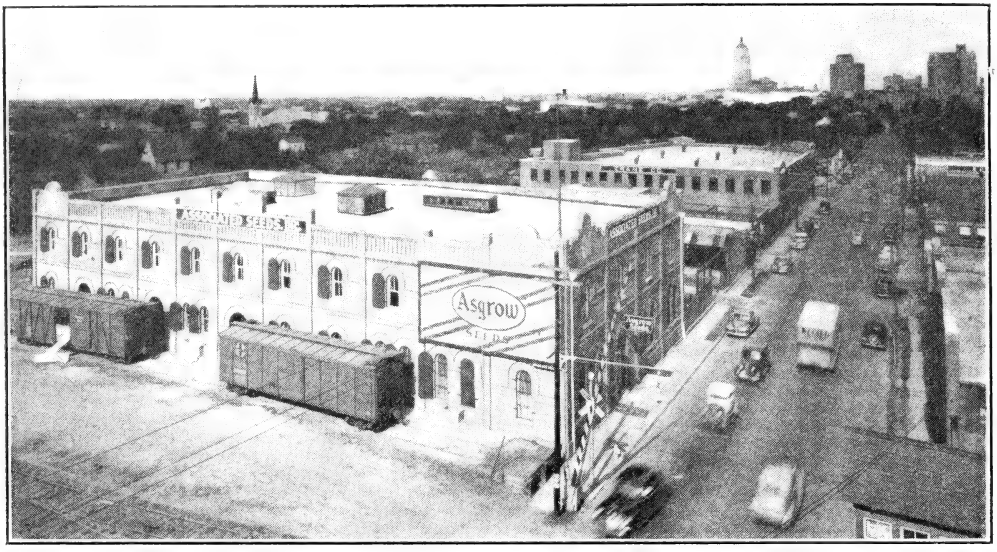
The basis of our business is to provide our customers with the best available varieties and strains of the crops they desire to grow. Accordingly we are in constant touch and friendly co-operation with the Texas Agricultural Experiment Station, where many of the more modern varieties described in this catalog have been developed, and which we are now able to offer commercially.

In addition we maintain our own extensive breeding station at Robstown, pictured above, where a long-range development program of plant crossing, selection and testing is being carried on. The work at this station is directed not only to the production of new varieties intended for definite requirements, such as disease-resistance or adaptation, but also to the purification of stocks of standard types and the maintenance of quality at a high level. Our customers are always very welcome at the Robstown breeding station so that they may see for themselves what we are doing to enable Texas farmers to grow better crops.

A 100-acre breeding field of Asgrow corn. Tassels have been removed from all but the lighter rows, which are the pollen parents



Carefully bagged and stored, Asgrow Seeds await shipment



Our San Antonio premises, 1226 East Houston Street, located for speedy service

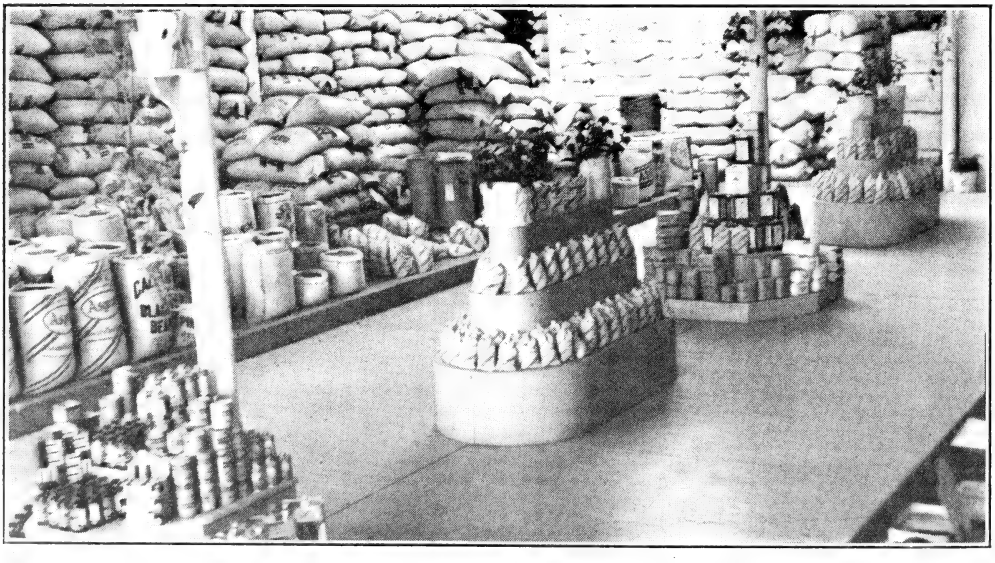
ASSOCIATED SEEDS, Inc.

Breeders, Growers and Distributors

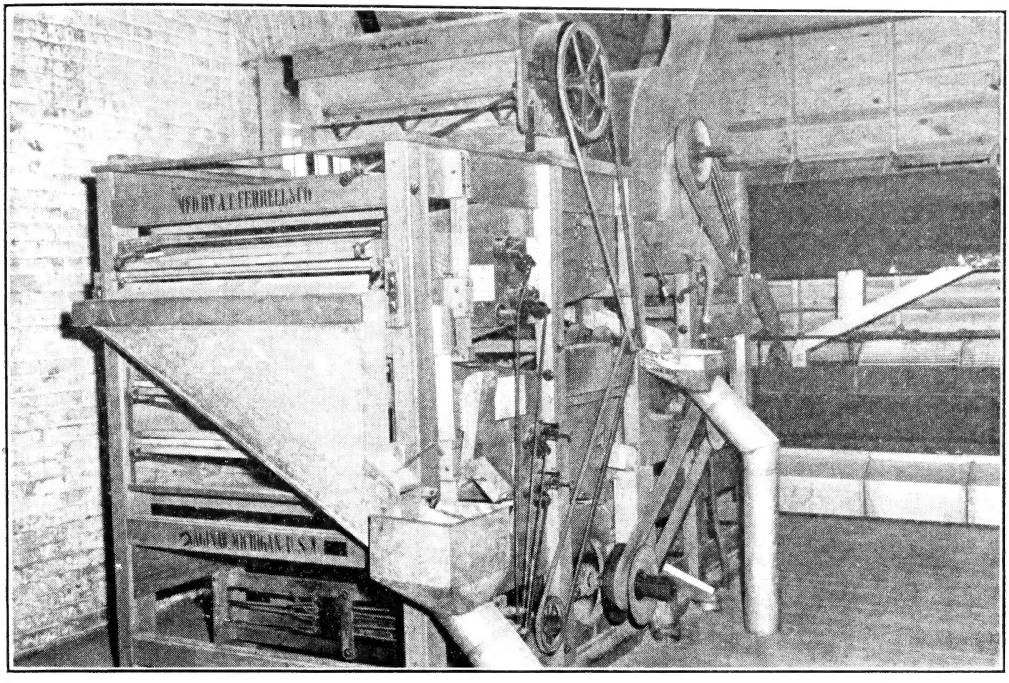
San Antonio 6

Robstown **Weslaco**

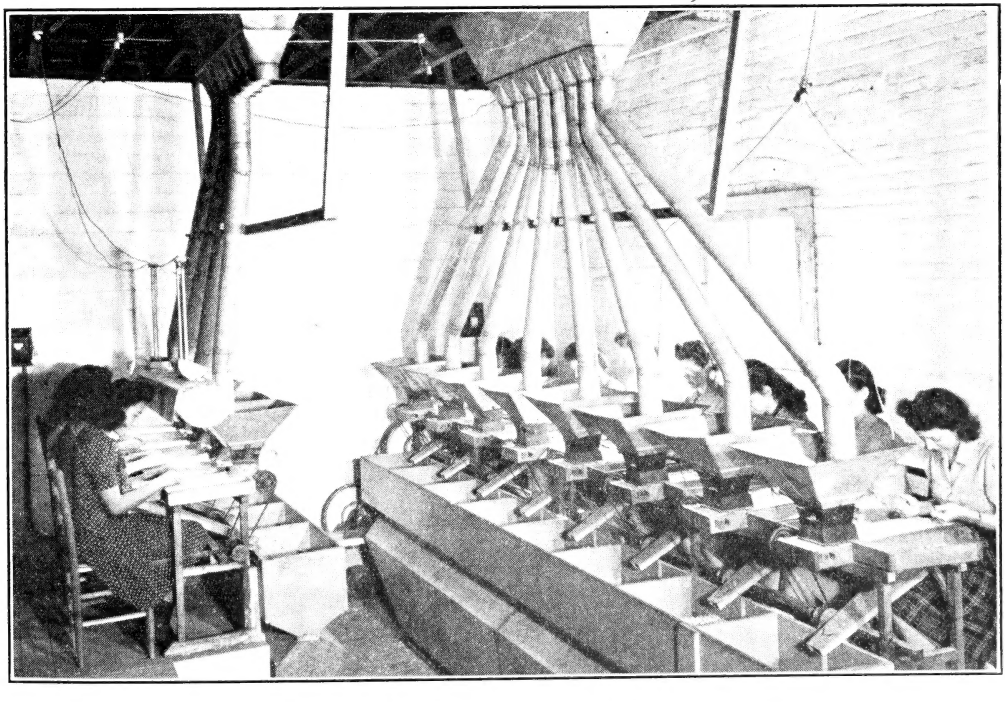
Texas



A corner of our warehouse and store at Robstown



Modern mills are installed at our San Antonio plant, but . . . . .



. . . . . some species must finally be picked by hand

INDEX

Planting Table for San Antonio area at center of book - pages 24, 25

Asgrow

TEXGROW